LA-UR-15-20296
Approved for public release; distribution is unlimited.

Title:	An Assessment of Cold War-Era Buildings at Technical Area 46: Phase II Los Alamos National Laboratory
Author(s):	McGehee, Ellen D. Garcia, Kari L. M
Intended for:	Report Environmental Programs
Issued:	2015-01-27 (rev.1)

LA-UR-15-20296
January 14, 2015

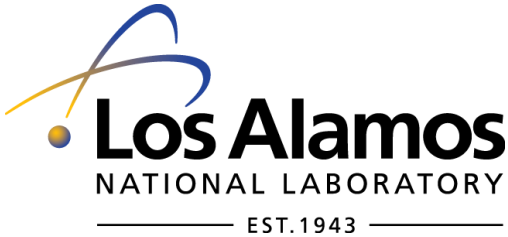
An Assessment of Cold War-Era Buildings at Technical Area 46: Phase II

Los Alamos National Laboratory

LANL FY 2015 Footprint Reduction

Historic Building Survey Report No. 330

Survey No. 1155



Prepared for: the U.S. Department of Energy/National Nuclear Security Administration, Los Alamos Field Office

Prepared by: **Ellen D. McGehee**, Historian and Historic Buildings Manager
Kari L. M. Garcia, Cultural Resources Manager
LANL Environmental Stewardship Services (ENV-ES)

with

Ken Towery, Architect, LANL Infrastructure Planning (OI-IP)
Kristen Honig, LANL Infrastructure Planning (OI-IP)
David Holtkamp, COMPA

EXECUTIVE SUMMARY

The U.S. Department of Energy, National Nuclear Security Administration, Los Alamos Field Office proposes to decontaminate, decommission, and ultimately demolish several Cold War-era properties located within Technical Area (TA) 46, Los Alamos National Laboratory (LANL). These buildings have been identified as excess property, and their demolition is being planned as part of LANL's Footprint Reduction Program activities during fiscal year 2015.

In compliance with Section 106 and Section 110 of the *National Historic Preservation Act*, LANL's cultural resources staff completed the evaluation of several potentially-eligible historic properties for inclusion in the National Register of Historic Places (Register): TA-46-16, TA-46-58, and TA-46-420. LANL historic building inventory forms for all three properties are included in Appendix A. Of the three evaluated properties, TA-46-16 and its interconnected support building TA-46-420 are considered Register-eligible based on the findings in this assessment report. Building TA-46-58 is deemed not eligible. In addition to Register evaluations, historic properties at TA-46 were assessed for their preservation and public interpretation potential. None of the Register-eligible properties were identified for permanent retention.

The State Historic Preservation Officer (SHPO) is requested to concur with the eligibility determinations contained in this report for the properties at TA-46. Additionally, this report serves as notification that the three properties described in this report will be demolished. Adverse effects to Register-eligible buildings will be resolved using standard documentation and reporting measures developed in consultation with the SHPO's office (stipulated in Section 9 of the LANL Cultural Resources Management Plan) (LANL 2006a). Standard measures include a written history of the technical area and a use history of the affected properties as well as detailed architectural documentation of the properties, such as archival quality photographs and updated as-built drawings. In addition, archival records along with historically significant equipment and "artifacts" associated with the historic properties will be identified prior to any demolition action and stored at appropriate LANL repositories.

CONTENTS

Maps

Tables

INTRODUCTION

The U.S. Department of Energy, National Nuclear Security Administration, Los Alamos Field Office proposes to demolish several Cold War-era properties during fiscal year (FY) 2015 as part of the Los Alamos National Laboratory (LANL or the Laboratory) Footprint Reduction Program activities.

Historic Property Eligibility Assessment

In compliance with Sections 106 and 110 of the *National Historic Preservation Act*, this report contains documentation regarding the National Register of Historic Places (Register) eligibility status of three Cold War-era buildings located at Technical Area (TA) 46. Work processes carried out at TA-46 supported Cold War reactor technology and strategic and supporting science programs including nuclear rocket research (Project Rover), laser research, and chemistry and materials science research projects. Historical context information about activities at TA-46, property descriptions, and recommendations for Register eligibility are included in this report. A discussion of the multiple property method used to evaluate these properties is also included. Appendix A includes historic building inventory forms for the three buildings.

Survey Methods

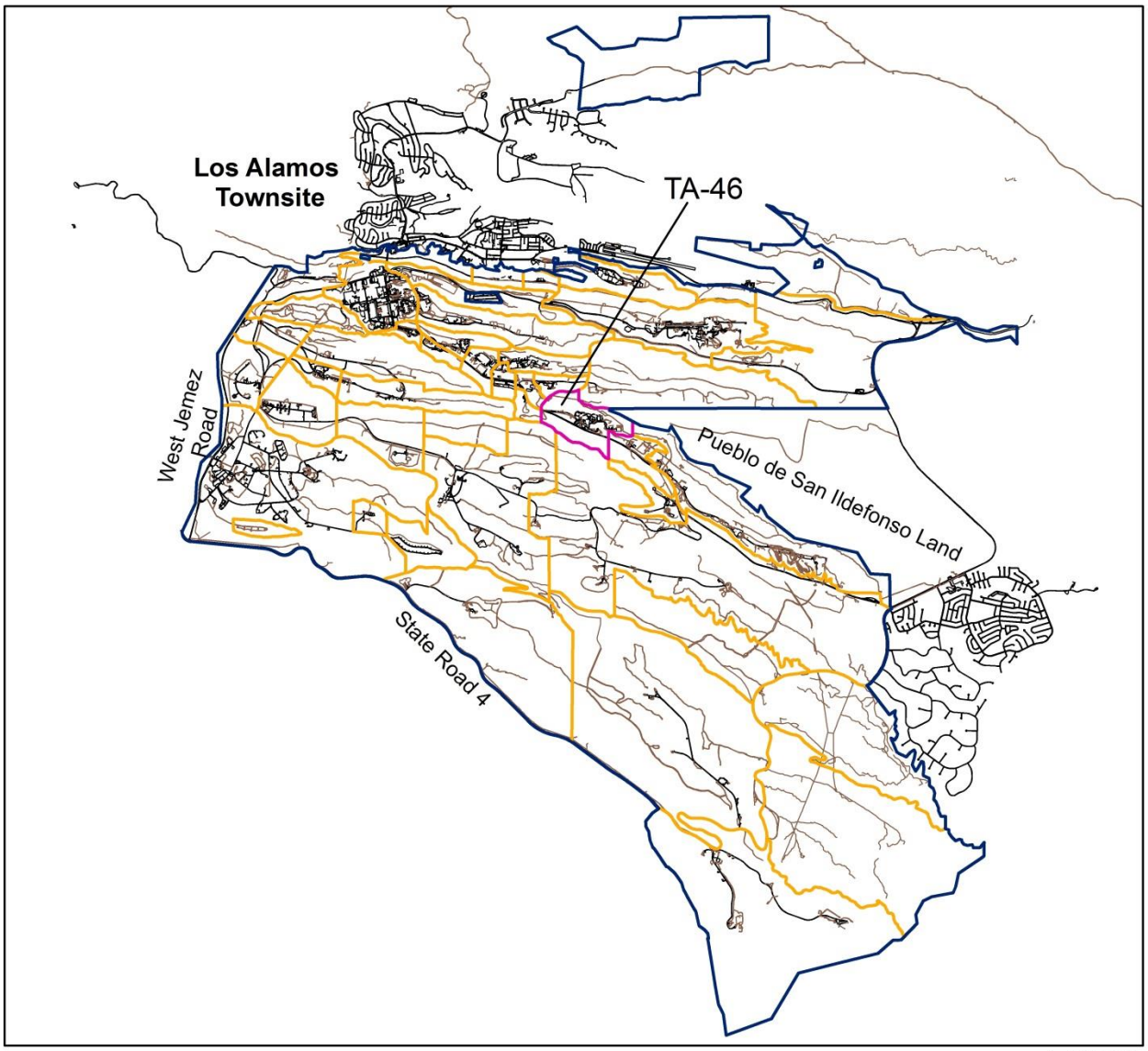
Some of the initial surveys of properties located at TA-46 were conducted by Sheila A. McCarthy, Historical Architect, Benchmark Consulting Group in 2006. Follow-up survey and documentation work was conducted in 2014 by Ken Towery, Architect, and Kristen Honig, LANL Infrastructure Planning Group, and Kari Garcia and Ellen McGehee, LANL Environmental Stewardship Services Group. The building surveys were accomplished by conducting field visits to the buildings at TA-46 (Maps 1 and 2). Architectural and engineering elements of the properties were documented and photographs were taken. LANL records research was also conducted.

HISTORICAL OVERVIEW

Early Cold War Era (1946–1956)

The future of the early Laboratory was in question after the end of World War II (WWII). Many scientists and site workers left Los Alamos and went back to their pre-war lives. Norris Bradbury was appointed director of the Laboratory following Oppenheimer's return to his pre-WWII duties, and he felt that the nation needed "a laboratory for research into military applications of nuclear energy" (LANL 1993a:62). In late 1945, General Groves directed Los Alamos to begin stockpiling and developing additional atomic weapons (Gosling 2001). Post-war weapon assembly work was now tasked to Los Alamos's Z Division, which had been relocated to an airbase (now Sandia) in nearby Albuquerque, New Mexico (Gosling 2001).

In 1946, the Laboratory became involved in "Operation Crossroads," the first of many atmospheric tests in the Pacific. Later, also in 1946, the U.S. Atomic Energy Commission (AEC) was established to act as a civilian steward for the new atomic technology born of WWII. The AEC formally took over the Laboratory in 1947, making a commitment to retain Los Alamos as a permanent weapons facility.



1:110,000

Los Alamos
National Laboratory
Resources Management Team
ENV-ES Environmental
Stewardship Group

7,000 3,500 0 7,000 14,000 Feet

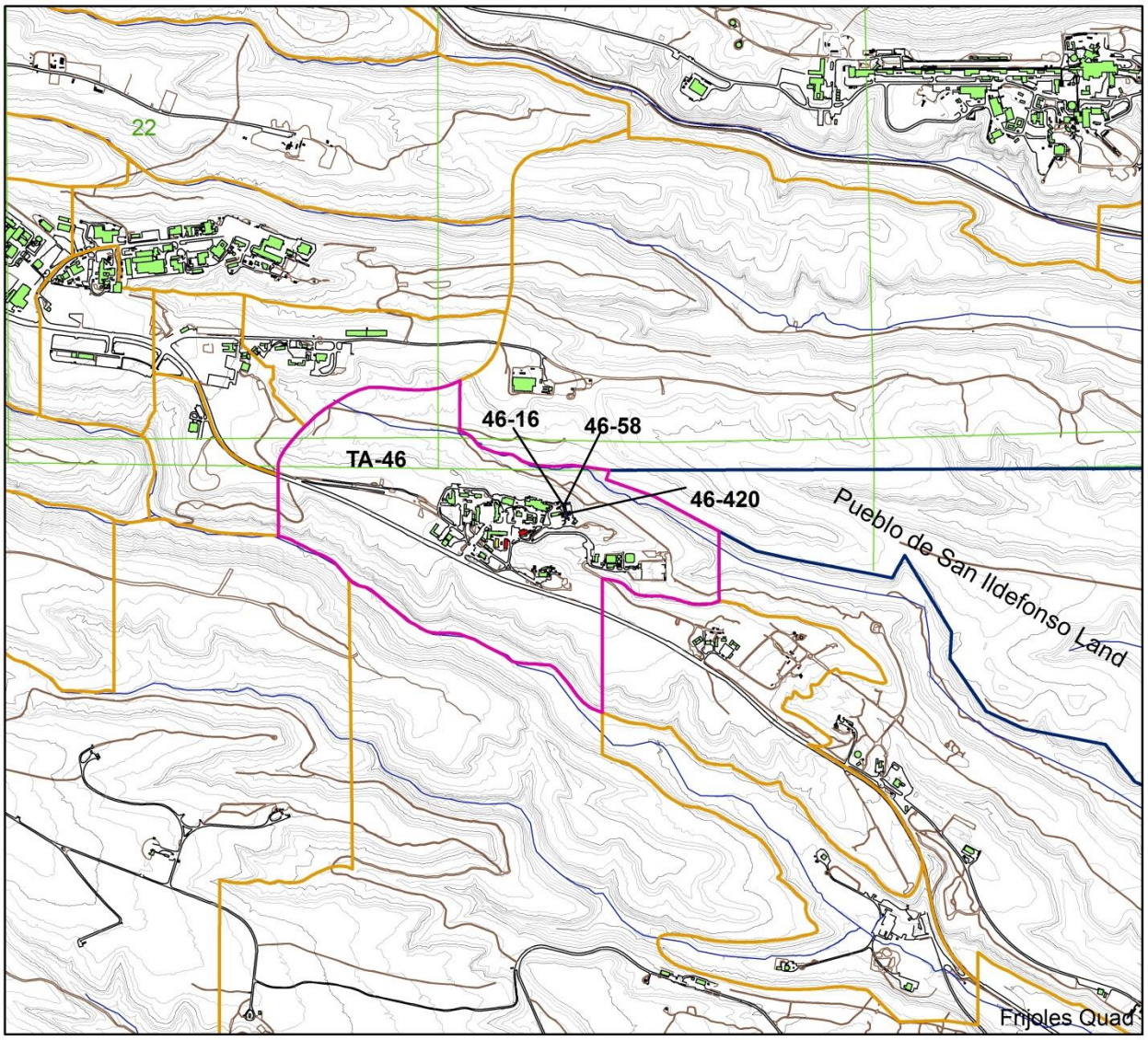
2,000 1,000 0 2,000 4,000 Meters

N
W E
S

Technical Area 46
Technical Areas
LANL Boundary
Dirt Roads
Paved Roads

LANL Boundary and TA-46

Map 1



Los Alamos
National Laboratory
Resources Management Team
ENV-ES Environmental
Stewardship Group

2,000 1,000 0 2,000 4,000 Feet

1,000 500 0 1,000 Meters

N
W E
S

- Buildings Currently Being Evaluated
- Buildings Previously Declared Eligible
- Buildings Previously Declared Not Eligible
- Buildings/Structures
- Technical Area 46
- LANL Boundary
- Technical Areas
- Drainage
- 20 Foot Contours
- 100 Foot Contours
- Township, Range, Section
- USGS 7.5 Minute Quad
- Dirt Roads
- Paved Roads

TA-46
Evaluated buildings

Map 2

With the beginning of the Cold War—the term "Cold War" was first coined in 1947—weapons research once again became a national priority. Weapons research at Los Alamos, spearheaded by Edward Teller and Stanislaw Ulam, focused on the development of the hydrogen bomb, the feasibility of which had been discussed seriously at Los Alamos as early as 1946. The simmering Cold War came to a full boil in late 1949 with the successful test of "Joe I," the Soviet Union's first atomic bomb. In January 1950, President Truman approved the development of the hydrogen bomb; Truman's decision led to the remobilization of the country's weapons laboratories and production plants. The year 1950 also marked the initial meeting of Los Alamos's "Family Committee"—a committee tasked with developing the first two thermonuclear devices (LANL 2001). In 1951, the Nevada Proving Ground was established and the first Nevada atmospheric test, "Able," was conducted. In the same year, Los Alamos directed "Operation Greenhouse" in the Pacific and successfully conducted both the first thermonuclear test, "George," and the first thermonuclear "boosted" test, "Item." In 1952, the first thermonuclear bomb, known as "Mike," was detonated at Enewetak Atoll in the Pacific (LANL 1993a).[1] In short order, the Soviet Union responded with a successful fusion demonstration in August 1953, followed by a test of a hydrogen bomb in 1955. The arms race was on. By 1956, Los Alamos had successfully tested a new generation of high explosives (plastic-bonded explosives) and had begun to make improvements to the primary stage of a nuclear weapon (LANL 2001).

Although weapons research and development has always played a major role in the history of the Laboratory, other key themes for the years 1942–1956 include supercomputing advancements, fundamental biomedical and health physics research, high explosives research and development, reactor research and development, pioneering physics research, and the development of the field of high-speed photography (McGehee and Garcia 1999). The Early Cold War era at Los Alamos ended in 1956, a date that marks the completion of all basic nuclear weapons design at the Laboratory; later research at Los Alamos focused on the engineering of nuclear weapons to fit specific delivery systems. The year 1956 was also the last year that the Laboratory was a closed facility—the gates into the Los Alamos town site came down in 1957.

Late Cold War Era (1956–1990)

The Late Cold War era saw the Laboratory's continued support of the atmospheric testing programs in the Pacific and at the Nevada Test Site. In 1957, the first of many underground tests in Nevada was conducted, and in 1963, the Limited Test Ban Treaty was signed, which banned atmospheric testing and also nuclear weapons tests in the oceans and space (U.S. DOE 2000). Defense mission undertakings during this time included treaty and test ban verification programs (such as the satellite detection of nuclear explosions), research and development of space-based weapons, and continued involvement with stockpile stewardship issues. Non-weapons undertakings supported nuclear medicine, genetic studies, National Aeronautics and Space Administration collaborations, superconducting research, contained fusion reaction research, and other types of energy research (McGehee and Garcia 1999).

The Cold War Ends

The Cold War ended in the early 1990s. Its demise was marked by START, the Strategic Arms Reduction Treaty (signed by Reagan's successor, George Bush, and Soviet president, Mikhail

[1] A better understanding of the Marshall Islands language has permitted a more accurate transliteration of Marshall Island names into English. Enewetak is now the preferred spelling (formerly Eniwetok).

Gorbachev), and by Bush's announcement in September 1991 of a unilateral decision to decrease significantly the U.S. nuclear weapon stockpile. That announcement was followed in June 1992 by an agreement between President Bush and Russian president Boris Yeltsin to reduce each country's nuclear arsenal gradually over the next decade. The arms race that had lasted nearly half a century was over (Machen et al. 2010).

DESCRIPTION OF TECHNICAL AREA

TA-46 (WA-Site) Historical Background

TA-46, historically known as Weapons Assembly (WA) Site, was first used during the Cold War years to support the Rover nuclear rocket program and later served as a center for laser and materials chemistry research. The technical area is located along the Pajarito Road corridor in the center of LANL and consists of laboratory and office buildings along with warehouses and other storage buildings (Map 3).

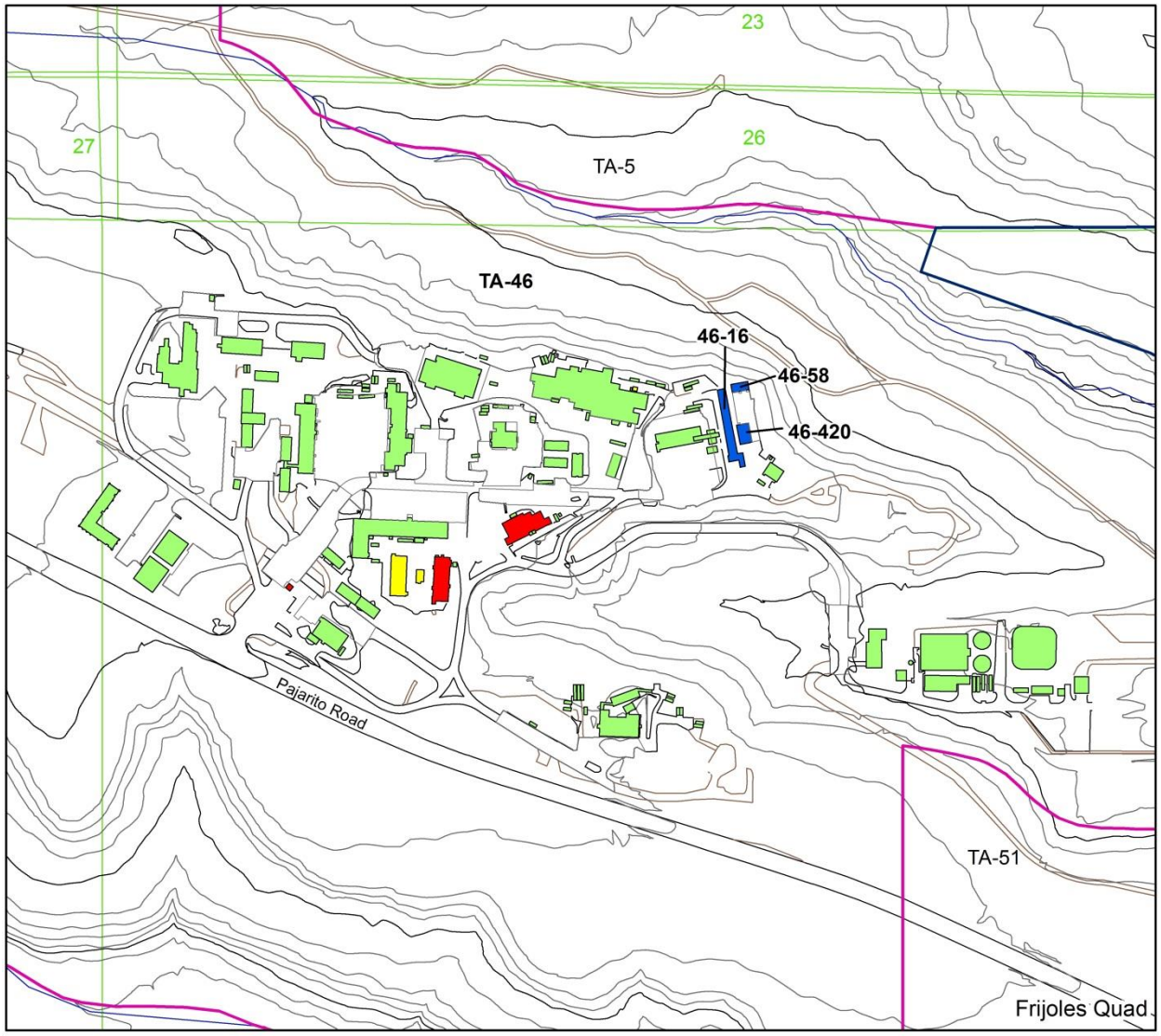
TA-46's first building, TA-46-1, was constructed in 1954 to support weapons assembly operations, but was never used for that purpose. Over the years, TA-46 has supported the Laboratory's basic science mission. Research priorities at TA-46 have changed several times since the technical area's first use supporting Nuclear Rocket (N) Division's development of reactors for rocket propulsion. Following the termination of the Rover Program in 1973, activities at TA-46 supported laser isotope separation, the production of nonradioactive isotopes of oxygen, carbon, and nitrogen, and nanoscale chemistry research (LANL 1993b; LANL 2002). In the 1970s and 1980s, Energy (Q) Division personnel also conducted solar energy experiments at TA-46, including the construction of experimental solar buildings and solar ponds. In the 1990s, scientific work focused on photochemical research involving free electron lasers and hydrogen fuel cells. Heat pipe studies, and accelerator and electronics research were also conducted during this time (LANL 1993b). Most recently, the facilities at TA-46 have been used for diverse chemistry and materials science research, including nanoscale studies in support of solar energy research.

LANL Cold War Context and Themes at TA-46

Key historical themes have been identified in a LANL Cold War context report produced as part of the documentation of the former LANL Administration Building (SM-43) (Machen et al. 2010). The scientific work at TA-46 has contributed significantly to several of these important LANL-wide Cold War historical themes, especially *Reactor Technology* (and its Project Rover subtheme) and *Strategic and Supporting Research* (including the subthemes of "nuclear science" and "energy research").

Reactor Technology

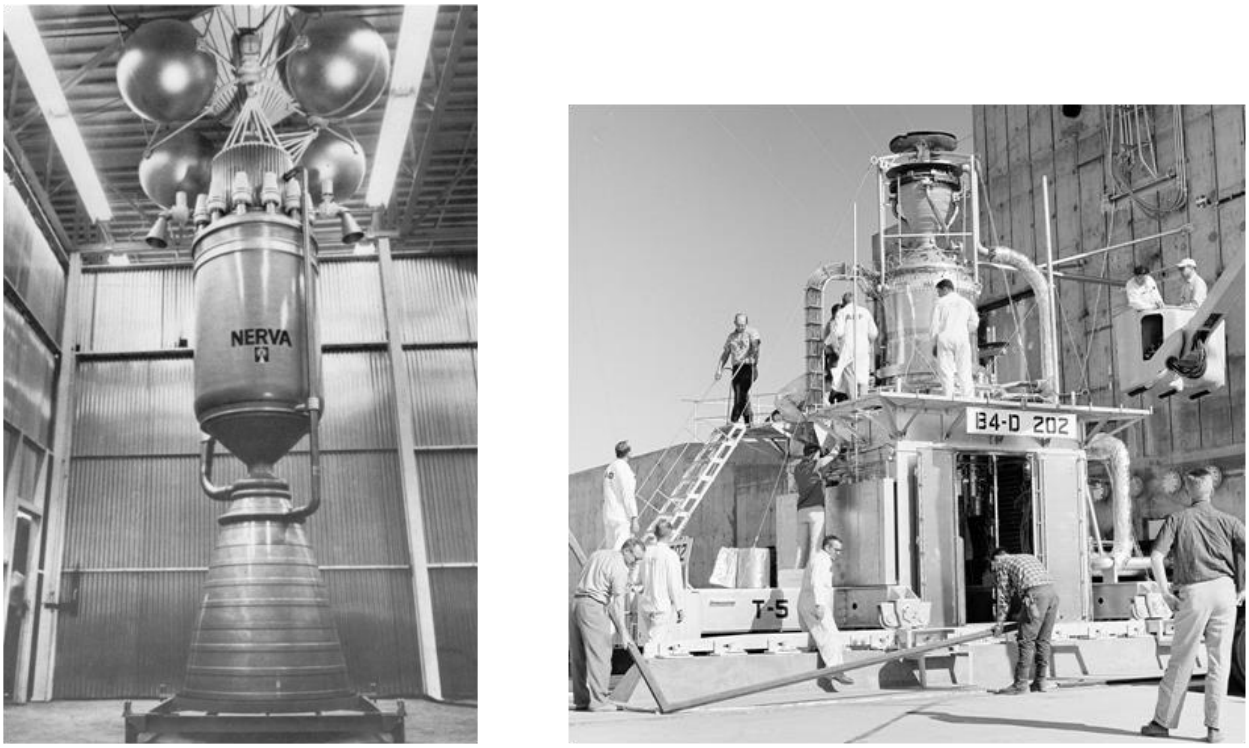
Reactors have been developed and used at LANL ever since Manhattan Project days. They have served such diverse purposes as providing measurements essential to the World War II atomic bomb project, producing radioisotopes for research projects, conducting criticality experiments (to determine when a chain reaction would occur in fissionable materials), and powering rockets in space (Machen et al. 2010).


23
27
26
TA-5
TA-46
46-16
46-58
46-420
Pajarito Road
TA-51
Frijoles Quad
1:4,948
Los Alamos
National Laboratory
Resources Management Team
ENV-ES Environmental
Stewardship Group
500 250 0 500
Feet
125 62.5 0 125
Meters
N
W
E
S
TA-46
Evaluated Buildings
TA-46-16, -58, & -420
Buildings Currently Being Evaluated
Buildings Previously Declared Eligible
Buildings Previously Declared Not Eligible
Buildings/Structures
LANL Boundary
Technical Area 46
Technical Areas
Drainage
20 Foot Contours
100 Foot Contours
Township, Range, Sectior
USGS 7.5 Minute Quad
Dirt Roads
Paved Roads

Map 3

PROJECT ROVER

Using the experience gained in its pioneer reactor development endeavors, Laboratory scientists concentrated on other projects that used reactors for power. From 1955 to 1972, the Laboratory developed fission reactors for Project Rover, a program designed to meet the needs of an interplanetary mission—in particular, a manned mission to Mars. Chemically powered rockets were already being developed elsewhere for the Intercontinental Ballistic Missile Program, but it was not certain that a rocket powered by chemicals could travel as far as desired. To provide a backup, scientists working on the Rover Program studied and built test reactors that could be used in a nuclear-powered rocket. A cool gas would be passed through a hot reactor powered by atomic energy; as the superheated gas shot out of a nozzle, the resulting propulsion would far exceed that provided by chemically powered rockets. Los Alamos scientists developed a series of four reactors to understand the underlying principles of nuclear-rocket reactor technology. They designed the Kiwi reactor to develop the basic technology of nuclear thermal rockets; the Phoebus reactor to test designs for interplanetary voyages; a reactor they called Peewee-1 to test smaller, more compact reactor designs; and Nuclear Furnace-1 to test advanced fuels and designs for reducing emissions of radioactive material into the atmosphere. These reactors were tested at the Nevada Test Site. Project Rover successfully demonstrated that a nuclear reactor could be used to heat liquid hydrogen for spacecraft propulsion. But in 1969, the nation's plans for human exploration of Mars were abandoned, and Project Rover was canceled in the early 1970s (Machen et al. 2010).



The Project Rover nuclear reactor (photo at left) was designed to power rockets. Compressed hydrogen in the spheres at the top flowed through the reactor core (center) and formed a jet as it exited the nozzle at the bottom (LANL 1983). The Laboratory's Kiwi B-4D reactor (photo at right) being readied for a "hot run" in May 1964 (LASL 1964).

Strategic and Supporting Research

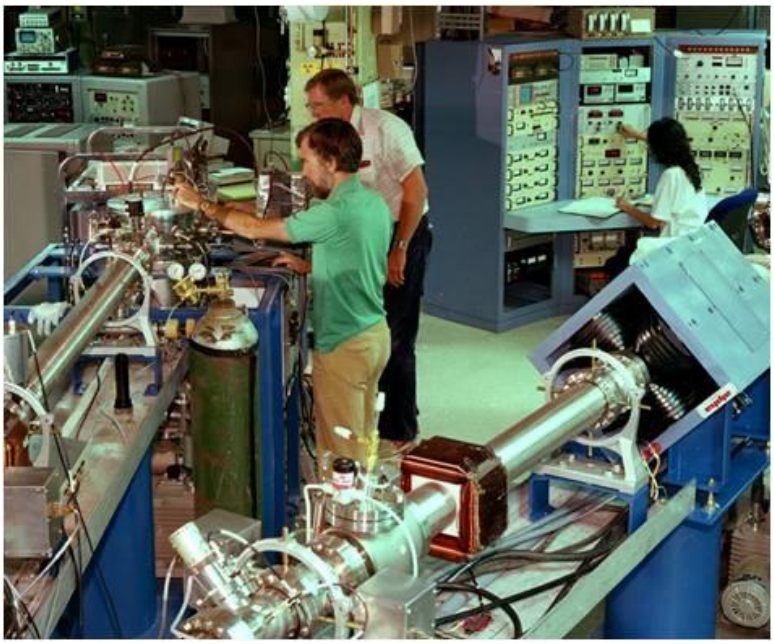
Throughout the Cold War years, the Laboratory's strategic and supporting research provided critical capabilities in support of the Laboratory's core responsibilities to the nation's nuclear weapons complex. Besides augmenting the areas of weapon physics, weapon engineering, and threat reduction, it consisted of a broad spectrum of high-quality, basic research that added to the national and international scientific knowledge base.

Nuclear Science

Nuclear science is a term that integrates capabilities and disciplines spanning the study of high-energy-density systems driven by intense beams, including nuclear physics and nuclear chemistry, plasma physics, accelerator technology and beam physics, and a wide range of technology applications involving many scientific disciplines. Nuclear science at the Laboratory originated in the nuclear weapons program; during the Cold War years, efforts in this field spanned from internationally recognized basic science programs in medium-energy and neutron nuclear physics to reactor safety studies (Machen et al. 2010).

Materials Science

Materials science covers an extraordinarily wide variety of work, all based on developing an understanding of, and controlling, the complexity of materials. From the beginning years of the Laboratory, scientists were in the business of processing new materials for technological needs because the very nature of building an atomic weapon required new materials and new technologies. To deal with the unique materials used in nuclear weapons, such as actinides, special ceramics, polymers, and so forth, Los Alamos scientists not only had to develop significant expertise in materials research but also needed to develop expertise on how materials behave (Machen et al. 2010).



Materials science is one of the Laboratory's core competencies, underpinning national security and civilian programs. The Ion Beam Materials Laboratory, shown here, characterized properties of various materials including geological and electronic materials and high-temperature superconductors (LANL 1991).

Research on Nanoscale Materials

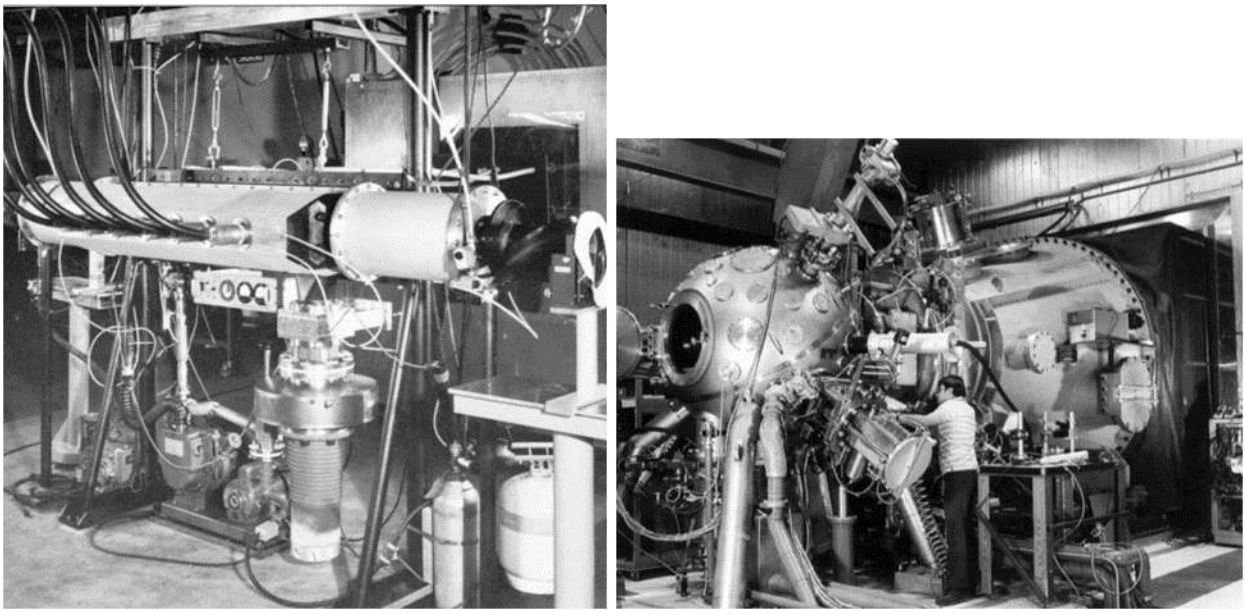
Nanoscience is the study of materials and their interactions at the atomic and molecular levels (that is, at the scale of one-billionth of a meter or a second); it has the potential to create novel and significantly improved devices or systems in the areas of agriculture, biotechnology, defense, electronics, environmental remediation and protection, health care, transportation, and many other fields. Potential applications range from how health care practitioners detect and treat diseases at the molecular level to novel methods of protecting national security (Machen et al. 2010).

Energy Research

Energy research at Los Alamos during the Cold War years encompassed many interests: finding new sources of energy, increasing domestic energy supplies, finding ways to use energy more efficiently, and modernizing the energy infrastructure. Pressures for such research included an increasing environmental awareness within the general population and the political consequences of that awareness; other reasons were related to the increasing demand for energy and the increasing turmoil in the energy-rich Middle East (Machen et al. 2010).

Laser Fusion

In 1969, Laboratory scientists began an experimental effort to see if fusion could be ignited by a high-energy laser. Over the years, several kinds of lasers were tested: carbon-dioxide lasers, so-called glass lasers, chemical lasers, and the free-electron laser. By 1972, the program had achieved sufficient size and complexity that a laser division was created at the Laboratory. But problems developed, and the final utility of laser fusion for energy production remained uncertain during this era. Many successful spin-offs resulted, nonetheless: the use of laser energy to separate uranium and plutonium isotopes, laser photochemistry, high-resolution laser spectroscopy, photochemical processing, laser sound generators for potential military purposes, and chemical and biological warfare-agent detectors (Machen et al. 2010).



One of the amplifiers (left) for the first large carbon-dioxide laser chain, built in the early 1970s (LANL 1983). A Laboratory technician (right) adjusts the final focusing system of Aurora, a krypton fluoride laser (LANL 1989).

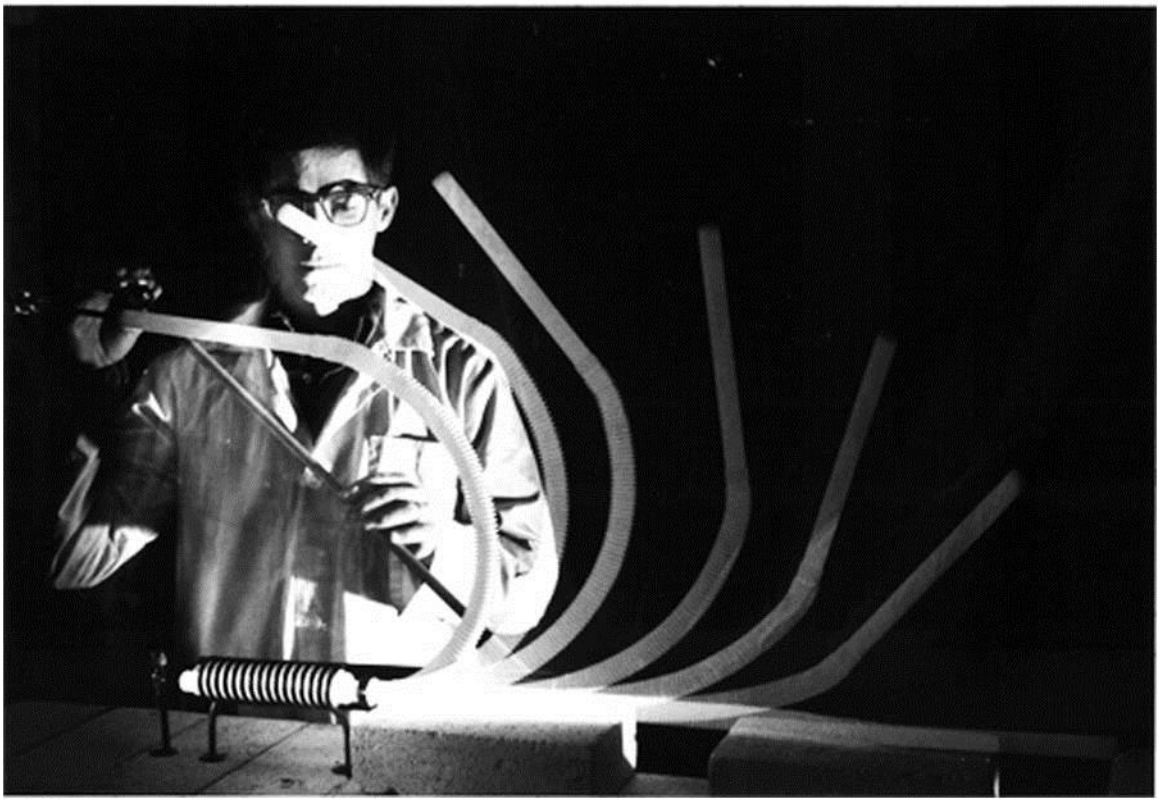
Solar Energy

A research and development program in active solar energy was initiated in the early 1970s to work on the design, installation, and operation of a solar-energy system to heat and cool the Laboratory's newly proposed National Security and Resources Study Center. Subsequently, scientists focused their attention on passive and low-energy solar research until 1988, after which this work was transferred to the Solar Energy Research Institute in Colorado (Machen et al. 2010). However, other solar energy research involving the study of nanoscale materials is still conducted at LANL.

Laboratory scientists examine the first of 40 solar collectors being installed at a test station in 1975 (LASL 1975).

Heat Pipes

Modern heat-pipe technology was first developed at Los Alamos over 40 years ago. Heat pipes are pencil-sized metal tubes that move heat from one end of the tube to the other without the aid of a pump. Within the heat pipe, heat vaporizes a small amount of fluid at the pipe's hot end, the fluid travels to the other, slightly cooler end, and condenses before returning to the hot end through a capillary wick, where it repeats the process. The device efficiently transfers large quantities of heat. At Los Alamos, during the Cold War era, heat pipes were studied for future space-age travel. Heat pipes vary greatly in size, depending upon their particular use. Some are the size of hypodermic needles, while larger versions stretch to 24 ft. Modern applications of this technology include miniature heat pipes that cool the chips inside most laptop computers. Heat pipes work efficiently in a zero-gravity environment; commercially developed heat pipes are now routinely used to cool electronics in communications satellites (Machen et al. 2010).



Heat pipes rechannel waste heat back into the production cycle of a system. Applications could range from permafrost control on the Alaska pipeline to heat-transfer devices in solar collection systems (LANL 2006b).

Project Rover at TA-46

Rover Program work began at TA-46 in the 1950s and primarily involved the testing of reactor fuel elements, which were composed of uranium-loaded graphite. The fuel elements were tested for structural soundness—occasionally even being tested to failure. Related coolant-flow studies were also conducted in support of the Rover Program as well as beryllium control rod testing (LANL 1993; Roberts and Griggs 1992). To carry out the fuel element thermal tests, test cell facilities were constructed with electrical furnaces. Warehouse facilities, like TA-46-75 and TA-46-76, were built to store the fuel elements and other laboratory equipment (Ehrenkranz 1964). A 1962 memo to file described how the test cells were used.

> Test Cell #1 [TA-46-16] is used to evaluate the effects of high temperatures (2500° C) on Kiwi fuel elements. The elements are placed in the furnace and hydrogen is passed through the element at high pressure. Helium is used to flush the system and cool the element to a temperature where it can be handled. All gases are vented directly to a stack on top of the building. The elements are then removed from the furnace, visually inspected and checked for weight loss, change in dimensions and general deterioration. Usually the fuel element can easily be removed from its casing. In those instances where this is not possible, the casing is cut on a saw located outside the Test Cell. A vacuum cleaner and flexible hosing is used to remove all particles from the cutting operation. Both Uranium-235 and depleted Uranium elements are tested, with the majority of the work involving U-235 (Ettinger 1962a).

At TA-46, heat transfer studies and fluid flow studies were conducted at different temperature ranges at the different Rover Program facilities. For example, TA-46-31 supported cryogenic studies using liquid hydrogen and nitrogen. Low temperature testing of structural components was conducted at TA-46-59, and other low temperature studies were carried out in an area of TA-46-1 called the "Dog House." At- or above-room temperature heat transfer and fluid flow studies were conducted on graphite and metals at Test Cell 2 (TA-46-16), and Test Cells 3 and 4 (TA-46-16) were used to conduct similar heat and flow studies and other kinds of structural testing at high temperatures, with Test Cell 4 being used for larger components (Ettinger 1962b). The Core Support Test Facility (TA-46-88) was built in the later 1960s to support the Phoebus reactor rocket engine (Roberts and Reading 1992). During the Rover Program years, reactor subassembly work was conducted at other LANL technical areas, including TAs 1 and 18 (Ettinger 1962b).

Laser Research at TA-46

Laser isotope separation studies and other laser programs have been some of the primary research activities carried out at TA-46 since the termination of the Rover Program in the early 1970s. The Applied Photochemistry (AP) Division's Jumper Program, which developed uranium isotope separation methods, was an early laser program that began operations at TA-46 by 1976. Additional support buildings were constructed to support the new laser research, including TA-46-154, the Laser Isotope Enrichment Building, built in 1978 (LANL 1993b).

Existing buildings, originally supporting Project Rover research, were converted for use by the Laboratory's laser program, including TA-46-24, used for experimental work involving lasers and uranium hexafluoride; TA-46-30 (the Hydraulics Laboratory or the Electronics Laboratory); TA-46-31 (Test Building #2, which originally housed Rover test cells 6, 7, and 8); TA-46-41 (the Laser Isotope Separation Support Facility or the Aerochemistry/Diagnostics Building); TA-46-75 (warehouse and krypton ion laser building); and TA-46-76 (the Laser Laboratory) (LANL 2002; Perkins 1986).

Other more recent facilities built for laser research at TA-46 include TA-46-154 (the Physical Chemistry Laboratory or Applied Photochemistry Building), housing high-powered gas lasers; TA-46-158 (the Laser-Induced-Chemistry Laboratory); TA-46-161 (Accelerator Vault Building), used for experimental work involving an accelerator and lasers; TA-46-200 (the Chemistry/Laser Laboratory or Fourier Transform Spectrometer Facility), used for spectroscopic study of atoms and molecules, applied photochemistry, and photophysics; TA-46-208 (the Free-Electron Laser Laboratory), used before 2002 for experimental work involving a radio-frequency generator (X-rays); and TA-46-250 (the Analytical Chemistry Building) (LANL 2002).

Post-Cold War Research

Recent research conducted at TA-46 by LANL scientists include chemistry and materials science projects involving heat flow studies, carbon dioxide capture research, and nanoscale research including nanoenergy applications and the study of nanostructured materials to boost the efficiency of solar energy conversion. Other research includes synthetic inorganic and organic chemistry focused on the field of energetic materials.

MULTIPLE PROPERTY METHOD OF EVALUATION

The three buildings at TA-46 proposed for demolition in FY 2015 were evaluated using a multiple property documentation approach. This systematic approach serves as a useful evaluation tool to determine the historical significance of a group of thematically related properties, such as those located at TA-46. A key element of the multiple property documentation approach is context. Contexts provide information about historical patterns and trends and have clearly defined themes, geographical areas, and chronological periods (U.S. NPS 1999).

All of the potentially historic buildings and structures at TA-46 (those 50 years old or older) are technologically related and date to the late Cold War era at Los Alamos (1956–1964). Six Cold War-era buildings at TA-46 were previously evaluated for Register-eligibility in advance of demolition activities planned during FY 2014 (McGehee et al. 2014). As discussed in the historical background section above, properties at TA-46 are linked to specific subthemes underlying two of the LANL-wide Cold War historical themes identified in a LANL Cold War context document: *Reactor Technology* and *Strategic and Supporting Science* (Machen et al. 2010). Decisions relating to final eligibility recommendations were based on the type of property, the level of physical integrity, and associations with significant themes.

Associated Property Types

The multiple property documentation approach requires the identification of property types that are associated with historical contexts. This identification facilitates the evaluation of individual properties within the broader complex of properties being reviewed. Properties are compared with other historical resources that have similar histories and similar physical characteristics (Hanford Site 1999a).

There are four general property types associated with TA-46's historical themes.

1. **Laboratory-Testing Buildings or Structures** such as test cells and laser facilities.
2. **Administration Buildings** such as office buildings and facilities housing facility management and health and safety personnel.
3. **Security Buildings and Structures** such as guard stations, security lights, and fencing.
4. **Support Buildings and Structures** such as warehouses, storage buildings, water tanks, utilities, and waste treatment facilities.

Laboratory-testing facilities located at TA-46 are associated with the technical functions underlying the main Cold War themes of *Reactor Technology* and *Strategic and Supporting Science*. Specific activities carried out in this type of property supported Cold War Rover rocket engine development and later laser, solar energy, chemistry and materials science, and nanoscale research. Some minor test support facilities, identified in this report as "second tier" properties, are considered an essential but secondary type of laboratory-testing building. These properties do not usually house key operations.

Laboratory-testing facilities are representative of the "industrial vernacular" architectural style prevalent at Los Alamos. Like LANL's other research facilities, the design of TA-46's properties is primarily determined by the nature of the technical area's specific operations. For example, reinforced concrete is the primary construction material used when designing a facility for chemicals

and radioactive materials research because concrete is inherently secure, durable, and cleanable. The type of activities carried out in each building or structure also determines the configuration of interior space.

Administration buildings located at TA-46 are closely associated with the operation of nearby laboratory-testing facilities. Administration buildings typically house support and research operations such as administrative and staff offices, monitoring and facility management staff offices, light laboratory space, showers, and change rooms. Administration buildings are typically located away from the experimental areas. This practice allows personnel and material from the administration facilities to remain separate from chemical, radioactive, or other hazards and maximizes the distance from experiments.

Security buildings and structures are associated with the general operation of TA-46 and support the main overarching theme of research, development, and testing related to the Laboratory's reactor technology and strategic and supporting science programs. Examples of this property type include guard stations and physical exclusion structures such as fencing and barriers.

Support buildings and structures were originally built to support Cold War research and development. Like laboratory-testing facilities, support facilities are divided into two subcategories. "First tier" support properties are primarily buildings and include machine shops, warehouses, power plants, and significant water tanks. "Second tier" support properties are primarily structures; examples include pump houses and electrical substations.

Core properties within each associated property type have also been identified. These buildings or structures are key representatives of their associated theme(s) and are often eligible for the National Register.

Integrity

Although properties may be significant or exceptionally significant and may be eligible for the Register based on association with historical events and contexts, integrity must be determined for all buildings that, on first-cut, are considered eligible. LANL historic buildings staff have developed four integrity codes to better assess potentially eligible properties. The integrity requirements for properties eligible under Criterion A are less stringent than for those properties eligible under Criterion C. A historically significant property with a level 3 integrity could still be eligible, especially if an element of historical uniqueness is involved. Properties eligible under Criterion C should have no lower than a level 2 integrity. Level 4 integrity properties are not eligible for the Register.

1. Excellent Integrity—the property is still closely associated with its primary context and retains integrity of location, design, setting, workmanship, materials, feeling, and association. Little or no remodeling has occurred to the property and all remodeling is in keeping with its associated historic context and significant use period.

2. Good Integrity—the property's interior and exterior retain historic feeling and character but most of the original equipment may be gone. The property may have had minor remodeling.

3. Fair Integrity—a property in this category should retain original location, setting, association, and exterior design. All associated interior machinery and equipment may be absent but the key question is "Is this property still recognizable to a contemporary of the building's historic period?"

4. Poor Integrity—the property has no connection with the historically significant setting, feeling, and context. Major changes to the property have occurred. The property would be unrecognizable to a contemporary.

Themes

Activities within TA-46 can be grouped under several historical subthemes that support the technical area's two main Cold War scientific themes *Reactor Technology and Strategic and Supporting Science*. Specific subthemes related to the three buildings described in this report are listed below. Because of their reuse history, all of the evaluated facilities are linked to more than one theme.

Cold War Reactor Technology (Project Rover)
TA-46-16, TA-46-58, and TA-46-420

Late Cold War Strategic and Supporting Science (Lasers/Chemistry and Materials Science/Nanotechnology/Solar Energy)
TA-46-16, TA-46-58, and TA-46-420

Eligibility Criteria

Laboratory-testing facilities, administration buildings, and security buildings and structures do not need to possess an integrity of both exterior and interior features in order to be eligible for the National Register under Criterion A. In cases where original equipment has been removed, a property can still be considered significant for its historical associations. Laboratory-testing, administration, and security properties need only retain original location, setting, association, feeling, and exterior design to maintain significant historical integrity under Criterion A. Properties eligible under Criterion C have to meet a more stringent standard of physical integrity. However, additions and remodeling that reflect changing scientific missions are acceptable under Criterion C (Hanford Site 1999b).

In order to be eligible under Criterion A, support buildings and structures must have functioned as significant support facilities within an associated historical context (Hanford Site 1999b). "First tier" support properties, if linked to a historically significant context and 50 years old or older, may be eligible for the Register. If less than 50 years old, support properties must be exceptionally significant. "Second tier" support and laboratory-testing properties, primarily structures, are usually not eligible for the Register (even if they are 50 years old or older) because of the minor role they played in history.

DESCRIPTIONS OF EVALUATED BUILDINGS

Technical Area: 46
Building Number: 16

Original Function: Rover Program Test Bldg #1
Current Function: Chemistry and Laser Science
Date Constructed: 1958

Associated Theme: Reactor Technology/Late Cold War Strategic and Supporting Science
Property Type: Laboratory/Testing (1st Tier)
Integrity: Good
Core: Yes
Eligibility: Yes

Buildings with same floorplan within TA: none


View of east side


View of north side and door to basement tunnel


View of west side


View of south side with high bay addition

Architectural Description:

TA-46-16 is a one-story building with a full basement predominately rectangular-in-plan. The building measures 206 ft, including the south tower, by 25 ft 6 in. wide. The southern end perpendicular 'room' is 29-ft 10-in.-wide while the south tower is 14-ft 6 in.-wide. The entire building contains over 6791 ft^2**.**

The building is constructed with a reinforced concrete perimeter foundation, 10-in.-thick concrete floor, 12-in.-thick concrete tunnel/basement walls, and 12-in.-thick concrete first floor walls. The roof is constructed with a 10-in.-thick concrete slab that terminates with a 3-ft-wide overhang on the west side. The interior testing rooms range in height from 11 ft on the east side to 10 ft on the west side due to the slope of the shed roof. An 8-in.-thick concrete apron extends approximately 14 ft out

from the building on the east side. The apron area is covered by a shed-roof awning supported by steel columns.

The north end of the building has been excavated to allow the basement and tunnel to be accessed at grade. Steel stairs provide access to the lower level from the east side apron area. The lower level is equipped with a pair of metal doors each equipped with two lights.

Access into the building is possible through several single and pairs of painted hollow-metal doors extending down both the east and west sides. Each interior 'room' is equipped with two exterior doors in combinations of single and double units. Some doors are equipped with louvers as well. There are no windows on the building. The exterior of the building is equipped with oversized mechanical equipment and duct work as well as conduit, lights, and signage. A bottle storage area is located on the east side of the building near the north end.

A small addition was constructed in 1963 near the south end of the building on the east side. The addition is constructed with 8-in.-thick concrete block walls on the north and south, with the east wall constructed with corrugated fiberglass panels. The addition has a slightly sloping shed roof as well. Modifications to Test Cell #1 (the south side tower) occurred in 1978. A four-story tower was constructed on top of the existing 8-in.-thick concrete block wall cell. The tower currently measures 40 ft tall and is constructed with a steel frame, steel x-bracing sheathed with 18-guage metal panels. The flat roof is constructed with a steel decking covered with a 4-ply built-up roof system. The cell tower is equipped with a pair of oversize access doors approximately two-stories in height.

Historical Background:

TA-46-16, also known as Test Building 1 or the Test Component Building, was constructed in 1955 for the testing of Rover rocket engine components as part of the Rover Program. The building was designed by Black & Veatch Consulting Engineers, Kansas City, Missouri. Located in an area of TA-46 called the "Point" or the "N-1 Point," building TA-46-16 was designed with an alternating series of tests cells and control rooms similar to building TA-46-31, another test cell facility at TA-46 (LASL 1957; Welty 1958a; and Roberts and Griggs 1992). Building TA-46-16 underwent several expansions during the Cold War years and its ultimate design included four test cells, three control rooms, and a shop space used to support experiments on Rover reactor fuel elements (Ettinger 1962b).

Each control room was separated from its adjacent test cell by thick concrete walls and blast resistant glass windows (Welty 1958b). The test cells were designed to test graphite, uranium-235, and uranium-238 reactor fuel elements (Roberts and Griggs 1992). In addition to control rooms next to each cell, standard test cell configuration included a gas piping system with shut off valves, meters, and flow regulators. Test cells also contained test furnaces, heat exchangers, and exhaust stacks (Ehrenkranz 1969).

During the Rover Program years, "the Point" area of TA-46 included a utility house (TA-46-17) that housed a generator to provide power to the test cells in building TA-46-16. Tube trailers for the various gases piped into the test cells were also staged at a nearby parking area. A bank of 98 submarine batteries for use with the test cells was located northwest of TA-46-16 (LASL 1957). As part of the original design of TA-46-16, a tunnel was constructed under the test cell and control room spaces; access to this basement area is located on the north side of the building near the canyon edge. In addition to the tunnel space that runs underneath the building, there is another tunnel that was built to carry cabling from the generator in the utility house to the control rooms in TA-46-16 (LASL 1957).

Test Cell #1

Test Cell #1 was designed for high temperature experiments (Welty 1958b). Tests were conducted on tuballoy (natural uranium)-containing plates as well as on oralloy (enriched uranium)-containing plates. Gases used included a mixture of helium, hydrogen, and methane, and temperatures in Test Cell #1 could reach 2500 degrees C (over 4500 degrees F). Worker contamination from the test cell operations was a concern. The air near the workers' breathing zones was sampled during the loading and unloading of the plates used during the experimental tests; workers' urine was also routinely sampled (Welty 1958a; Ettinger 1962a).

Test Cell #2

Test Cell #2 housed a large pressure vessel. Studies were conducted on graphite and other metals at temperatures at and above room temperature. Like the other test cells, experiments conducted in Test Cell #2 were run from a control room (Welty 1958b; Ettinger 1962b).

Test Cell #3

Test Cell #3 was used to study materials under high pressure and high temperatures using a low flow rate of gas (Welty 1958b). Some of the elements were subjected to structural tests, and temperatures in this test cell reached up to 5000 degrees F (Ettinger 1962b).

Test Cell #4

Test Cell #4 was similar to Test Cell #3 but was intended for the testing of larger components. This cell was added after 1962 (Ettinger 1962b).

The Rover Program's use of building TA-46-16 ended in 1972 with the termination of the reactor rocket engine project. In 1986, some concerns about potential contamination in the building were noted.

> After the Rover program was phased out, a general clean-up of TA-46 was conducted….However, the ducts and drains in lab building 1 and in the test cells 1 and 2 in building 16 continue to be listed as moderately contaminated with uranium (Balo and Warren 1986:60).

In 1972, building TA-46-16, the adjacent generator in TA-46-420, and the existing liquid hydrogen dewar and associated supply lines were proposed for a post-Rover superconducting experiment. The "Point" area was to be retrofitted to support a one-kilometer, coaxial superconducting transmission line, which would "eliminate almost all the transmission losses characteristic of conventional alternating lines" (LASL 1972:9-10). Scientists at the time felt that supercooled materials in the line would limit the transmission losses that normally occur with electrical resistance. The proposed superconductivity project was described in a March 1972 Laboratory publication, but was never carried out.

> To demonstrate the technical and economic feasibility of the superconducting line, the scientists are proposing an eight- to ten-year, two-phase project….Phase one of the project…would be directed toward the construction of a 20-meter test-bed transmission line….At Technical Area 46, a one-kilometer, 5,000 megawatt line would be constructed based on the results of work done in the first phase (LASL 1972:12).

Today, the former Rover Program areas in the building, including the test cells, have been converted into office and laboratory spaces to support laser and chemistry research. Not much remains from the Rover Program's use of the building; however, the original view ports that allowed Rover scientists to view each test cell from the safety of its respective control room still exist. Several of the central rooms in the building, now designated rooms 5A and 5B, were modified to create a small room (5C) to house the control panels for the new, higher powered generator installed in building TA-46-420. Original equipment related to the operation of the generator is still located in this room. Many of the laboratory spaces in the buildings have hydrogen gas warning signs posted on their outside doors. A laser experiment is located in the high bay addition on the south end of the building.

Determination of Eligibility:

This building meets National Register of Historic Places criteria for significance in that it possesses integrity of design, setting, materials, workmanship, feeling, and association. The building is significant under Criterion A due to its association with Cold War science in support of the Laboratory's reactor and laser programs. The building was originally designed to be a test cell building for the Rover Program. Although its footprint has been modified over the years to include several additions and remodeled laboratory and office spaces, this modification relates to its use as a key laboratory facility in support of later Cold War strategic science.

Technical Area: 46
Building Number: 58

Original Function: Laboratory, Office, and Shop

Current Function: Laboratory and Office
Date Constructed: 1962

Associated Theme: Reactor Technology/Late Cold War Strategic and Supporting Science
Property Type: Laboratory/Testing (2nd Tier)
Integrity: Good
Core: No
Eligibility: No

Buildings with same floorplan within TA: none


View of south side


Oblique view of south and east sides


View of north side


View of west side

Architectural Description:

TA-46-58 is an oversized one-story building that is rectangular-in-plan and measures 46 ft by 20 ft 2 in. and 12-ft-high. The building is constructed with a concrete perimeter foundation, concrete floor slab, pumice concrete-block walls, and a flat roof with steel joists, built-up roof system and gravel stop. The roof is also equipped with lightning rods and a vent stack.

The south side of the building is the main entrance and consists of a pair of painted hollow-metal doors with adjustable louvers. These doors enter into the mechanical room. A single painted hollow-metal door with wire glass, approximately centered on the south wall, enters into the shop area. The south side also contains a single 3-light, awning-style window. The west side contains a concrete pad between this building and the adjacent TA-46-16 to the west. This area is covered with a corrugated fiberglass awning supported by steel columns. Under the awning is a second single painted hollow-

metal door with wire glass. It is located on the west side near the north corner and also opens into the shop area. A bottle rack is located adjacent to the door. The north side of the building has four 2-light, hopper-style windows set close to the roof line. This side also contains a corrugated aluminum canopy supported by steel columns located just below the bottom of the windows and spans the entire length of the building. The covered walkway area is enclosed on the north side by steel pipe railing. The east side contains a single mechanical louver set in the upper third of the wall.

Historical Background:

TA-46-58, also located in the "Point" area of TA-46, is a laboratory and shop building. Constructed in 1962, the building has chemical hoods, chemistry work benches, a machine shop area, a bathroom and shower, a small office space, and an equipment room accessed from the building's exterior (Ettinger 1962b; Roberts and Griggs 1992; and Roberts and Reading 1992). A 1986 field survey in the area noted the presence of industrial debris behind the building, and evidence that drains on the north side of the building emptied waste into the environment (Perkins 1986). A LANL Environmental Restoration Program document noted the presence of the following hazardous materials in the waste: volatiles, semivolatiles, metals, plutonium-238, plutonium-239/240, uranium-235, uranium-238, polychlorinated biphenyls, mercury, and thorium-230 (LANL 1993).

Determination of Eligibility:

This building is a small laboratory, office, and shop facility used to support Project Rover. Until recently, it has been used as a laboratory and office. Although the building's exterior is relatively unchanged since it was constructed and its overall physical integrity is good, the building was not a core research facility during the Rover Program years or during the later Cold War years when TA-46 was a center for strategic science and does not meet National Register of Historic Places criteria.

Technical Area: 46
Building Number: 420

Original Function: Generator Building
Current Function: None
Date Constructed: 1968

Associated Theme: Reactor Technology/Late Cold War Strategic and Supporting Science
Property Type: Support (1st Tier)
Integrity: Good
Core: Yes
Eligibility: Yes (due to its association with the history of test cell building TA-46-16)

Buildings with same floorplan within TA: none

View south side


Oblique view of east and north sides

Architectural Description:

TA-46-420 is a metal structure typical of the era pre-engineered building. It is 28-ft-wide by 48-ft-long and 20-ft-high containing approximately 1344 ft^2. It consists of steel beam and channel structure with a galvanized ribbed panel exterior and roof siding. On the south end, there is one personnel door and a double height, 10-ft-wide equipment door. Similar doors are on the north side as well. The roof is a low slope panel at a 2/12 slope. There are two 4-ft-diameter gravity exhausters on the roof. Although not completely visible, a substantial concrete foundation system exists; heavy, rotating generator equipment is in the building.

The west side of the building has a 10-ft-wide overhanging canopy, which rests on the adjoining structure (TA-46-16). The east side of the building has an enclosed filter housing, approximately 4-ft-wide, 8-ft-high and runs the length of the building. The filters appear to be intake filters capable of full building filtration.

Historical Background:

TA-46-420 is a metal building used to house a large Westinghouse 2.5 MW Homopolar generator (LASL 1972). Added in 1968 to support Rover Program activities and connected to building TA-46-16 by a metal awning, the building was originally given the designation TA-46-100. In addition to the new generator building, a section of tunnel space under TA-46-16 had to be added in order to accommodate the installation of cabling from the generator to the test cell building. The new generator building is essentially a mechanical room supporting TA-46-16. Even its main control panel is located in the adjacent test cell building. By 1984, the generator building was no longer identified as a separate building; rather, it was identified as Room 9 of building TA-46-16. However,

by 1995, the building was once more given its own number, that of TA-46-420, a designation it retains today.

Determination of Eligibility:

TA-46-420 was built as an addition to test cell building TA-46-16 and houses a generator that supported activities in the test cell building. The building should be considered part of TA-46-16 and the generator building's historical context and significance is linked to the historical context of the test cell building, which is a key Cold War scientific facility at TA-46 that supported the Rover Program.

National Register Eligibility Recommendations

Properties Determined Eligible for the National Register of Historic Places

Of the three Cold War-era buildings evaluated for Register eligibility in this report, two are deemed eligible under Criterion A (properties "associated with events that have made a significant contribution to the broad patterns of our history"). Historically, these properties supported advancements in reactor technology and various strategic and supporting science programs during the late Cold War, circa 1956 to 1990 at LANL. Building TA-16-420 was constructed in 1968 as an addition to TA-46-16. Although the two buildings are now designated as two separate properties, for the purposes of Register eligibility the support function of building TA-46-420 should be considered part of the overall history and significance of building TA-46-16.

Table 1 lists buildings evaluated in this report that are considered eligible for listing in the Register.

Table 1. Eligible TA-46 Properties

Property Number	Use	Date	Associated Themes	Property Type	Integrity	Core
46-16	*Test Building #1 (Laboratory and Office Space)*	*1955*	*Reactor Technology/ Late Cold War Strategic and Supporting Science/Security*	*Laboratory/Testing (1st Tier)*	*Good*	*Yes*
46-420	*Generator Building associated with 46-16*	*1968*	*Reactor Technology/ Late Cold War Strategic and Supporting Science*	*Support (1st Tier)*	*Good*	*Yes*
Total Number of Eligible Properties: 2						

Properties Determined Not Eligible for the National Register of Historic Places

Not all LANL properties constructed within the Laboratory's Manhattan Project and Cold War periods of significance[2] are historically important. In some cases, a property is of secondary or minor importance and does not contribute to the understanding of the key historical events or scientific developments that have taken place at Los Alamos. For example, some properties have served a purely support function and do not adequately illustrate the historical themes shaping the history of the Laboratory. In other cases, properties associated with significant Laboratory events have been modified to such an extent that the loss of physical integrity has impacted their status as Register-eligible properties.

TA-46-58 is a small laboratory, shop, and office building. It is not considered eligible for the Register because it functioned as a minor, second-tier laboratory facility during the Rover Program years and the later Cold War years.

[2] See LANL Cultural Resources Management Plan (LANL 2006a).

Table 2 lists properties evaluated in this report that are not eligible for listing on the Register.

Table 2. Non-Eligible TA-46 Properties

Property Number	Use	Date	Associated Themes	Property Type	Integrity	Core
46-58	*Laboratory, Shop, and Office*	*1962*	*Reactor Technology/Late Cold War Strategic and Supporting Science*	*Laboratory/Testing (2nd Tier)*	*Good*	*No*
Total number of non-eligible properties: 1						

CONCLUSION

The three Cold War-era buildings described in this report are scheduled for demolition during FY 2015 as part of LANL's Footprint Reduction Program activities. In compliance with the *National Historic Preservation Act*, LANL's cultural resources staff completed the evaluation of these potentially-eligible historic properties. Of the evaluated properties, the two interconnected buildings, TA-46-16 and TA-46-420, are considered Register-eligible and TA-46-58 is considered not eligible.

In addition to Register evaluations, historic properties at TA-46 were assessed for their preservation and public interpretation potential. None of the Register-eligible properties evaluated in this report were identified for permanent retention.

The State Historic Preservation Officer (SHPO) is requested to concur with the eligibility determinations contained in this report for the properties at TA-46. Adverse effects to Register-eligible buildings will be resolved using standard documentation and reporting measures developed in consultation with the SHPO's office (stipulated in Section 9 of the LANL Cultural Resources Management Plan) (LANL 2006a).

REFERENCES CITED

Balo, Karen A. and John L. Warren

1986 *Waste Management Site Plan*, LA-UR-86-990. Los Alamos National Laboratory, Los Alamos, New Mexico.

Ehrenkranz, Theodore

1964 January 28, 1964, Memo. To: Los Alamos Fire Department; From: Theodore Ehrenkranz, Safety Engineer; Subject: Supplementary Information,TA-46, WA-Site. Los Alamos National Laboratory Environmental Restoration Program (document reference number 46-000043), Los Alamos National Laboratory, Los Alamos, New Mexico.

1969 January 10, 1969, Los Alamos Scientific Laboratory memorandum. To: J. W. (?) [poor quality copy]; From: Ted Ehrenkranz, Safety Engineer, LASL; Sketch title: Typical TA-46 Hydrogen/Helium System, JER N-1/TEE H-3, 1/10/69. Los Alamos National Laboratory Environmental Restoration Program (document reference number 46-000055), Los Alamos, New Mexico.

Ettinger, Harry J.

1962a February 7, 1962, Memo to File. From: Harry J. Ettinger; Subject: Environmental Control of Radioactive Contamination at Test Cell #1, TA-46. Los Alamos National Laboratory Environmental Restoration Program (document reference number 46-000021), Los Alamos National Laboratory, Los Alamos, New Mexico.

1962b May 21, 1962, Memo to file. From Harry Ettinger; Subject: Industrial Hygiene Survey of Group N-3. Los Alamos National Laboratory Environmental Restoration Program (document reference number 46-000026), Los Alamos National Laboratory, Los Alamos, New Mexico.

Gosling, F. G.

2001 *The Manhattan Project: Making the Atomic Bomb*. U.S. Department of Energy. Copies available from DOE/MA-0002.

Hanford Site

1999a "Multiple Property Documentation." *Section 1.0, Introduction.* http://www.hanford.gov/doe/culres/mpd/sec1.htm #1.0, accessed using Netscape on 1/26/99 at 10:18 AM.

1999b "Multiple Property Documentation." *Section 5.0, The Manhattan Project and Cold War Eras, Plutonium Production at the Hanford Site, December 1942-1990.* http://www.hanford.gov/doe/culres/mpd/sec5.htm #5.0, accessed using Netscape on 1/26/99 at 10:46 AM. Authored by M. S. Gerber, Westinghouse Hanford Company, and D. W. Harvey and J. G. Longenecker, Pacific Northwest National Laboratory, Richland, Washington.

LANL (Los Alamos National Laboratory)

1983 *Los Alamos Science*. Issue 7, Vol. 4, No. 7 (winter/spring).

1989 *Los Alamos National Laboratory Research Highlights 1989*.

1991 *Los Alamos National Laboratory Research Highlights 1991*.

1993a *Los Alamos: Beginning of an Era, 1943-1945*. Reprinted by the Los Alamos Historical Society, Los Alamos, New Mexico.

1993b *RFI Work Plan for Operable Unit 1140: Environmental Restoration Program.* LA-UR-93-1940, Los Alamos National Laboratory, Los Alamos, New Mexico.

2001 *The Laboratory in a Changing World: A Los Alamos Chronology*; LALP-01-65. The Nuclear Weapons Publication Team, Los Alamos National Laboratory, Los Alamos, New Mexico.

2002 *A Special Edition of the SWEIS Yearbook; Description of Technical Areas and Facilities at Los Alamos National Laboratory*. LA-CP-02-75, Los Alamos National Laboratory, Los Alamos, New Mexico.

2006a *A Plan for the Management of the Cultural Heritage at Los Alamos National Laboratory, New Mexico*. LA-UR-04-8964, Los Alamos National Laboratory, Los Alamos, New Mexico.

2006b *Los Alamos Newsletter*. May 22, 2006.

LASL (Los Alamos Scientific Laboratory)

1957 *Indoctrination of Security and Fire Protection Personnel*, Notes from 28th Meeting, February 13, 1957. Meeting advisors were James E. Runyan, N-1, and L.W. McDonough, N-3, Los Alamos Scientific Laboratory. Los Alamos National Laboratory Environmental Restoration Program (document reference number 46-000002), Los Alamos, New Mexico.

1964 *The Atom* (May 1964). Los Alamos Scientific Laboratory, Los Alamos, New Mexico.

1972 *The Atom* (March 1972). Los Alamos Scientific Laboratory, Los Alamos, New Mexico.

1975 *The Atom* (March-April 1975). Los Alamos Scientific Laboratory, Los Alamos, New Mexico.

Machen, Judy, Kari Garcia, Ellen McGehee, Erik Loomis, Naomi Naranjo, Ken Towerry, John Ronquillo, Sheila McCarthy, and Kristen Honig

2010 *SM-43, Nerve Center of a National Laboratory: A History of the Los Alamos Administration Building (1956 to 2006)*. LA-UR-11-00922, Los Alamos National Laboratory, Los Alamos, New Mexico.

McGehee, Ellen D. and Kari L. M. Garcia

1999 *Historical Building Assessment for the Department of Energy Conveyance and Transfer Project*. Historic Building Survey No. 178, LA-UR-00-1003. On file at RRES-ECO, Los Alamos National Laboratory, Los Alamos, New Mexico.

McGehee, Ellen D., Kari L. M. Garcia, Ken Towery, and Kristen Honig

2014 *An Assessment of Cold War-Era Buildings at Technical Area 46, LANL FY 2014/FY 2015 Footprint Reduction Program Project*, LA-UR-14- 25029. Los Alamos National Laboratory, Los Alamos, New Mexico.

Perkins, B.

1986 Handwritten notes of a walk-around tour at TA-46, March 18, 1986. Los Alamos National Laboratory Environmental Restoration Program (document reference number 46-000089), Los Alamos, New Mexico.

Roberts, Jim, and Ed Griggs

1992 August 24, 1992, Memo to file. From: Jim Roberts and Ed Griggs; Subject: Building Layout at TA-46 During the Rover Program. Los Alamos National Laboratory Environmental Restoration Program (document reference number 46-000180), Los Alamos National Laboratory, Los Alamos, New Mexico.

Roberts, Jim, and Sam Reading

1992 August 24, 1992, Memo to File; From: Jim Roberts and Sam Reading; Subject: WA-88 Core Support Facility. Los Alamos National Laboratory Environmental Restoration Program (document reference number 46-000182), Los Alamos National Laboratory, Los Alamos, New Mexico.

Welty, C. G.

1958a April 7, 1958, Los Alamos Scientific Laboratory memorandum. To: H. F. Schulte, H-5; From: C. G. Welty, H-5; Subject: Proposed Operations in Cell-I, TA-46-16, The N-1 Point Facility. Los Alamos National Laboratory Environmental Restoration Program (document reference number 46-000007), Los Alamos, New Mexico.

1958b February 26, 1958, Los Alamos Scientific Laboratory memorandum. To: H. F. Schulte, H-5; From: Carl G. Welty, H-5; Subject: Industrial Hygiene Survey of N-Division Facilities at Site TA-46. LANL Environmental Restoration Program (document reference number 46-000005), Los Alamos, New Mexico.

U.S. DOE (Department of Energy, Nevada Operations Office)

2000 *United States Nuclear Tests, July 1945 through September 1992*. DOE/NV-209-REV.

U.S. NPS (National Park Service)

1999 *National Register Bulletin: How to Complete the Multiple Property Documentation Form*. http://www.cr.nps.gov/nr/bulletins/nr16b.htm. Accessed on January 28, 1999.

APPENDIX A. Historic Building Inventory Forms with Selected Photographs and Building Drawings for TA-46-16, -58, and -420.

LANL TA- Building # 46-0016

Camera 984231

Frame #s P0002954 through P0002961, IMG_1544 and IMG_1545

Surveyor(s) S. McCarthy, J. Ronquillo, N. Naranjo

Date 5/25/2006

Los Alamos National Laboratory
RMT Historic Building Survey Form

Building Name Test Building #1 UTMs easting 384509 northing 3968530 zone 13

Legal Description: Map USGS Friioles Ouad 2002 tnsp 19N range 6E sec

Current Use/ Function Test Building #1 Original Use/ Function Component Test Facility

Date (estimated) Date (actual) 1955 Property Type Laboratory/Processing

Type of Construction

Pre-Fabricated Metal ☐ Steel Frame ☐ Wood Frame ☐ CMU ☐ Reinforced Concrete ☐

Other Type of Construction One-story plus basement "tunnel" and multi-story tower. # of Stories

Foundation Reinforced Concrete

Exterior CMU-Exterior ☐ Reinforced Concrete-Exterior ☑ Steel (galvanized) ☐ Steel (corrugated) ☐

Wood Siding ☐ Asbestos Shingles-Exterior ☐ In-Fill Panels ☐ Other-Exterior

Exterior Treatment (painted, stuccoed, etc) Corrugated fiberglass wall panels enclose the original test cells as the control rooms wall are reinforced concrete.

Exterior Features (docks, speakers, lights, signs, etc) Exterior is equipped with oversized mechanical equipment and duct work, conduit, lights, and signage.

Addition CMU-Addition ☑ Reinforced Concrete-Addition ☐ Steel (galvanized)- Addition ☑ Wood ☐

Steel (corrugated)-Addition ☐ Asbestos Shingles-Addition ☐ Other- Addition

Exterior Treatment-Addition North and south walls constructed of 8 in. concrete blocks and corrugated fiberglass panels on the east side. The tower addition was constructed with a steel frame, steel cross-bracing sheathed with 18-guage metal panels.

Exterior Features-Addition

Roof Form Slanted/Shed ☑ Gable ☐ Other Roof Type

Degree of Pitch/ Slope Slight

Roof Materials Corrugated Metal ☐ Rolled Asphalt ☐ Asbestos Shingles ☐ 4-Ply Built Up ☑

Other Roof Materials Roof consists of a steel decking covered with a 4-ply built-up roof system.

Window Type Casement ☐ Single Hung Sash ☐ Double Hung Sash ☐ Fixed Window ☐

Other Window Type

# of Each Window Type/ Comments None

Glass Type Clear ☐ Wire Glass ☐ Opaque ☐ Painted Glass ☐ Glass Block ☐

Light Pattern

Door Type Personnel Door Types Exterior Fire Door ☐ Single ☑ Double ☑ Roll-up ☐ Sliding ☐
Hollow Metal ☑ Solid Wood ☐ 1/2 Glazed ☑ Paneled ☐
Louvered ☐ Painted ☑

Interior Fire Door ☐ Single ☐ Double ☐ Roll-up ☐ Sliding ☐
Hollow Metal ☐ Solid Wood ☐ 1/2 Glazed ☐ Paneled ☐
Louvered ☐ Painted ☐

Equipment Door Types Exterior Fire Door ☐ Single ☑ Double ☑ Roll-up ☐ Sliding ☐
Hollow Metal ☑ Solid Wood ☐ 1/2 Glazed ☐ Paneled ☐
Louvered ☐ Painted ☑

Interior Fire Door ☐ Single ☐ Double ☐ Roll-up ☐ Sliding ☐
Hollow Metal ☐ Solid Metal ☐ 1/2 Glazed ☐ Paneled ☐
Louvered ☐ Painted ☐

# of Each Door Type/Comments: 8 single half-glazed painted hollow metal doors, 5 double half-glazed painted hollow doors, and 4 double painted hollow metal doors

Interior Wall Gypsum Board ☐ Reinforced Concrete- Interior ☑

CMU- Interior ☐ Plywood ☐ Other- Interior Observation ports from contol rooms into test cells.

In-Wall Electrical Wiring ☐ On-Wall Electrical Wiring ☐

Ceiling Drop Ceiling ☐

Interior Comments (Equipment, etc)

Degree of Remodeling Moderate

Condition Excellent ☐ Good ☑ Fair ☐ Deteriorating ☐ Contaminated ☐ Burned ☐

Associated Buildings ☑

If yes, list building names and #s TA-46-420 and TA-46-58

Integrity Excellent

Significance Eligible

Eligible Under Criterion A ☑ B ☐ C ☐ D ☐ Not Eligible ☐

DOE Themes

Nuclear Weapon Components and Assembly ☐
Nuclear Weapon Design and Testing ☐
Nuclear Propulsion ☑
Peaceful Uses: Plowshare, Nuclear Medicine, Nuclear Energy, Nuclear Science ☑
Energy and Environment: Research and Design Projects ☑

LANL Themes

Weapons Research and Design, Testing, and Stockpile Support ☐ Super Computing ☐

Reactor Technology ☑ Biomedical/Health Physics ☐ Strategic and Supporting Research ☑

Environment/Waste Management ☐ Administration and Social History ☐ Architectural History ☐

Recommendations/ Additional Comments

Architectural Features (elevations)

TA-46-16 is a one-story building with basement tunnel that is predominately rectangular in plan. The building measures 206 ft in length including the south tower. The main portion of the building is 25 ft 6 in. wide. The southern end perpendicular 'room' is 29 ft 10 in. wide while the south tower is 14 ft 6 in. wide. The entire building contains over 6791 square feet.

The building is constructed with a reinforced concrete perimeter foundation, 10 in. thick concrete floor, 12 in. thick concrete tunnel / basement walls, and 12 in. thick concrete first floor walls. The roof is constructed with a 10 in. thick concrete slab that terminates with a 3 ft overhang on the west side. The interior testing rooms range in height from 11 ft on the east side to 10 ft on the west side due to the slope of the shed roof. An 8 in. thick concrete apron extends approximately 14 ft out from the building on the east side. The apron area is covered by a shed-roof awning supported by steel columns. The north end of the building has been excavated to allow the basement and tunnel to be accessed at grade. Steel stairs provide access to the lower level from the east side apron area. The lower level is equipped with a pair of metal doors each equipped with two lights. Access into the building is possible through several single and pairs of painted hollow-metal doors extending down both the east and west sides. Each interior 'room' is equipped with two exterior doors in combinations of single and double units. Some doors are equipped with louvers as well. There are no windows on the building. The exterior of the building is equipped with oversized mechanical equipment and duct work as well as conduit, lights, and signage. A bottle storage area is located on the east side of the building near the north end.

Total sq ft 6520 **Architect/ Builder** Black & Veatch Consulting Engineers

Alterations

A small addition was constructed in 1966 near the south end of the building on the east side. The addition is constructed with 8 in. concrete block walls on the north and south, with the east wall constructed with corrugated fiberglass panels. The addition has a slightly sloping shed roof as well. Modifications to Test Cell #1 (the south side tower) occurred in 1978. A four-story tower was constructed on top of the existing 8 in. concrete block wall cell. The tower currently measures 40-ft-tall and is constructed with a steel frame, steel x-bracing sheathed with 18 guage metal panels. The flat roof is constructed with a steel decking covered with a 4-ply built-up roof system. The cell tower is equipped with a pair of oversize access doors approximately two-stories in height.

List of Drawings (Cntrl + Enter for para break)

ENG-C 14972
Sheet 10 of 32
TA-46 Component Test Facility
WA-16, 17, 18 (TA-46-16, -17, -18)
Architectural & Structural
Plans and Sections
January 21, 1956

ENG-C 14973
Sheet 11 of 32
TA-46 Component Test Facility
WA-16 (TA-46-16)
Architectural & Structural
Architectural Elevations and Details
January 21, 1956

ENG-C 14974
Sheet 12 of 32
TA-46 Component Test Facility
WA-16, WA-17 & WA-18 (TA-46-16, -17, -18)
Architectural & Structural
Structural Sections
January 21, 1956

ENG-C 14975
Sheet 13 of 32
TA-46 Component Test Facility
WA-16, WA-17, WA-18 (TA-46-16, -17, -18)
Architectural & Structural
Structural Sections
January 21, 1956

ENG-C 14979
Sheet 17 of 32
TA-46 Component Test Facility
WA-16 (TA-46-16)
Architectural & Structural
Door, Hatch, Ladder, Grating, & Observation Port Details
January 21, 1956

ENG-C 26081
Sheet 2 of 23
Component Test Facility Modifications & Additions
Bldgs WA 16 & WA 58 (TA-46-16 & -58)
Architectural Plan
Door, Window & Room Finishes
January 23, 1961

ENG-C 26086
Sheet 7 of 23
Component Test Facility Modifications & Additions
Bldgs WA-16 & -58 (TA-46-16 & -58)
Roof Framing Plan
Details & Architectural Elev, Cross Sections for Cell 4 & Storage Room WA-16
January 23, 1961

ENG-C 28549
Sheet 1 of 8
Addition to Building WA-16 (TA-46-16)
Architectural, Plot Plan, Location Plan, Elevations, Bar. Sch. And Door Sch.
July 6, 1963

ENG-C 28550
Sheet 2 of 8
Addition to Building WA-16 (TA-46-16)
Architectural Floor Plan, Section and Details.
July 6, 1963

ENG-R 3852
Bldg. WA-16 (TA-46-16)
Equipment Surveillance Sys (ESS)
Floor Plan
September 15, 1966
Revised to June 1967

ENG-C 34954
Sheet 1 of 3
Test Cell Expansion
Bldg WA-16, TA-46 (TA-46-16)
Criteria
January 31, 1967

ENG-C 34955
Sheet 2 of 3
Test Cell Expansion
Bldg WA-16, TA-46 (TA-46-16)
Criteria
January 31, 1967

ENG-C 37036
Sheet 1 of 5
2.5 M.W.D.C. Power Supply
Bldg WA-16, WA-100 & WA-101, TA-46 (TA-46-16, -100, -101)
Plot Plan
September 29, 1968

ENG-C 43461
Sheet 2 of 10
Bldg WA-16, TA-46 (TA-46-16)
Test Cell #1 Mod's
Civil Plans and Elevations
July 13, 1978

ENG-C 43461
Sheet 3 of 10
Bldg WA-16, Ta-46 (TA-46-16)
Test Cell #1 Mod's
Civil Sections and Elevations
July 13, 1978

ENG-C 47632
Sheet 1 of 3
Bldg 16, TA-46 (TA-46-16)
Install Permanent Walls
Floor Plan-Elevations - Details
September 1978

ENG-C 47632
Sheet 2 of 3
Bldg 16, TA-46 (TA-46-16)
Install Permanent Walls
Floor Plan-Elevations
September 1978

ENG-C 47632
Sheet 3 of 3
Bldg 16, TA-46 (TA-46-16)
Install Permanent Walls
Floor Plan-Elevations
September 1978

ENG-R 3163
Bldg WA-16, TA-46 (TA-46-16)
Test Building No. 1
Basement & First Floor Plan
July 19, 1983
Revised to status of February 6, 1984

ENG-AB 359
Sheet 1 of 2
Bldg 16, TA-46 (TA-46-16)
Test Building No. 1
As-Built Record Floor Plan
Basement Floor Plan
May 3, 1995

ENG-AB 359
Sheet 2 of 2
Bldg 16, TA-46 (TA-46-16)
Test Building No. 1
As-Built Record Floor Plan
First Floor Plan
May 3, 1995

TA-46-16 East side, looking north

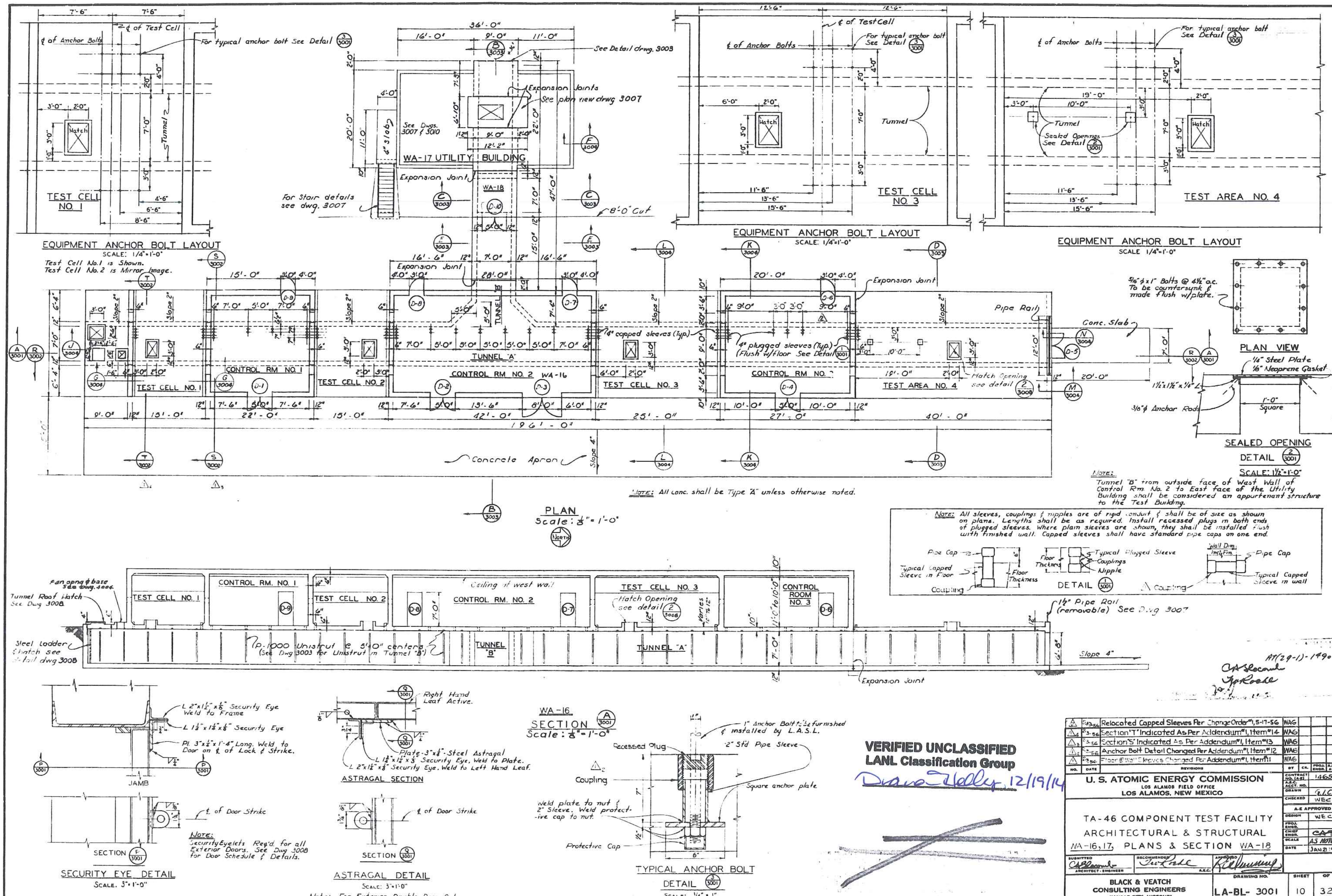
TA-46-16 East side, looking south

TA-46-16 North side and door to basement tunnel

TA-46-16 West side, looking north

TA-46-16 West side, looking south


TA-46-16 South side with high by addition



VERIFIED UNCLASSIFIED
LANL Classification Group
Diane Kelly 12/19/14

No.	Date	Revisions	By
5	5-3-56	Relocated Capped Sleeves Per Change Order #1, 5-17-56	WAG
4	3-5-56	Section "T" Indicated As Per Addendum #1, Item #14	WAG
3	3-5-56	Section "S" Indicated As Per Addendum #1, Item #13	WAG
2	3-5-56	Anchor Bolt Detail Changed Per Addendum #1, Item #12	WAG
1	3-5-56	Floor & Wall Sleeves Changed Per Addendum #1, Item #11	WAG

U. S. ATOMIC ENERGY COMMISSION
LOS ALAMOS FIELD OFFICE
LOS ALAMOS, NEW MEXICO

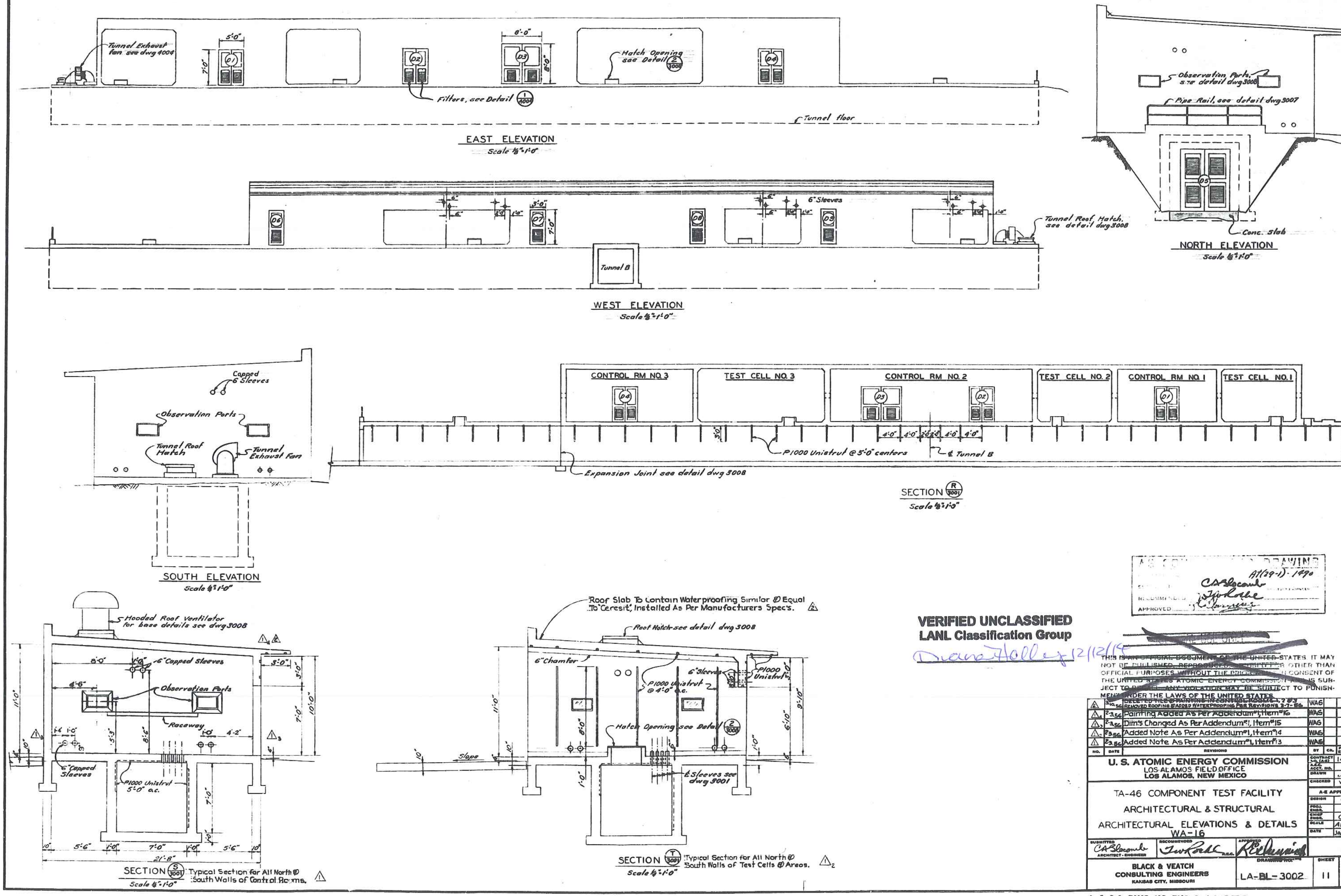
TA-46 COMPONENT TEST FACILITY
ARCHITECTURAL & STRUCTURAL
WA-16, 17, PLANS & SECTION WA-18

Contract No. 1465 · Drawn G.L.C. · Checked WEC · Design WEC · Scale AS NOTED · Date JAN 21 1956

BLACK & VEATCH
CONSULTING ENGINEERS
KANSAS CITY, MISSOURI

Drawing No. LA-BL-3001 · Sheet 10 of 32

LAB JOB 1756 L.A.S.L. DWG. NO. ENG-C 14972



AS CONSTRUCTED DRAWING AT(29-1)-1790

RECOMMENDED
APPROVED

VERIFIED UNCLASSIFIED
LANL Classification Group
Diane Holley 12/12/14

~~THIS IS AN OFFICIAL DOCUMENT OF THE UNITED STATES. IT MAY NOT BE PUBLISHED, REPRODUCED, OR USED FOR OTHER THAN OFFICIAL PURPOSES WITHOUT THE PRIOR WRITTEN CONSENT OF THE UNITED STATES ATOMIC ENERGY COMMISSION AND IS SUBJECT TO RECALL. ANY VIOLATION MAY BE SUBJECT TO PUNISHMENT UNDER THE LAWS OF THE UNITED STATES.~~

NO.	DATE	REVISIONS	BY	CK.	PROJ. ENGR.	A.E.C. APP.
△5	3-10-56	~~Deleted Tile & Painting in Control Rooms 1, 2 & 3~~ Removed Roofing & Added Waterproofing Per Revisions 2-7-56	WAG			
△4	2-3-56	Painting Added As Per Addendum #1, Item #16	WAG			
△3	2-3-56	Dim's Changed As Per Addendum #1, Item #15	WAG			
△2	2-3-56	Added Note As Per Addendum #1, Item #14	WAG			
△	2-3-56	Added Note As Per Addendum #1, Item #13	WAG			

U. S. ATOMIC ENERGY COMMISSION
LOS ALAMOS FIELD OFFICE
LOS ALAMOS, NEW MEXICO

TA-46 COMPONENT TEST FACILITY
ARCHITECTURAL & STRUCTURAL
ARCHITECTURAL ELEVATIONS & DETAILS
WA-16

Contract No. (A-E): 1465
A.E.C. Acct. No.:
Drawn: J.L.R.
Checked: WEC
A-E Approved
Design: WEC
Proj. Engr.:
Chief Engr.: CAS
Scale: As Noted
Date: Jan 23, 1956

Submitted: C A Slocomb, Architect-Engineer
Recommended: [signature] REC
Approved: [signature]

BLACK & VEATCH
CONSULTING ENGINEERS
KANSAS CITY, MISSOURI

Drawing No.: LA-BL-3002 | Sheet 11 of 32

LAB JOB 1756
L.A.S.L. DWG. NO. ENG-C 14973

Metal Reglet See Dwg. No. 3007

CONTROL RM. NO. 2 WA-16

Observation Port- See Dwg. No. 3008

Unistrut See Section L 3009

Approx. Fin. Grade

Conc. Apron

6x6-4/4 WWF

TUNNEL "A"

TUNNEL "B" WA-18

4 of P-1000 Unistrut Mounted on North Wall

Expansion Joint- See Dwg. No. 3008

8" 16 oz. copper water stop (Typical)

Typical For All Expansion Joints

SECTION B 3001
SCALE: 3/8"=1'-0"

Eye Bolt Detail
Scale 1½"=1'-0"

8x8x½" Plate
¾" ϕ Eye Bolt

Approx Finished Grade

Steel ladder & Removable Grating See drwg. 3008

SECTION C 3001
SCALE: 3/8"=1'-0"

Conc. Apron

Slope Top 2"

Approx. Fin. Grade

SECTION D 3001
SCALE: 3/8"=1'-0"

SECTION E 3001
SCALE: 3/8"=1'-0"

Utility Building WA-17
See Dwgs. 3009 & 3010

Concrete Base for Motor Generator See drawing 3007 for details

Utility building foundation

Expansion Joint

Eye Bolt See Detail This Sht.

4 of P-1000 Unistrut

For Reinforcement See Section P 3007

Top Face
Bottom Face
Approx. Grade

Note:
P-1000 Unistrut on south wall of Tunnel "B" to extend from ceiling down 3'-0" same as shown on Section R 3002 for east wall of Tunnel "A."

EXTEND ALL LONGITUDINAL REINFORCING BARS IN TUNNEL ROOF, WALLS & FLOOR AS SHOWN

PROVIDE KEYWAY

2 x 6 R EXP ANCHORS @ 2'-0" O.C

PLYWOOD

TUNNEL "B" TERMINATION DETAIL

VERIFIED UNCLASSIFIED
LANL Classification Group
Diane Hollis 12/12/94

NO.	DATE	REVISIONS	BY	CH.	PROJ. ENGR.	A-E APP.
2	3-26	Tunnel Termination As Per Change Order #3	WAG			
1	2-26	Unistrut Note Changed Per Addendum #1, Item #17	WAG			

U. S. ATOMIC ENERGY COMMISSION
LOS ALAMOS FIELD OFFICE
LOS ALAMOS, NEW MEXICO

TA-46 COMPONENT TEST FACILITY
ARCHITECTURAL & STRUCTURAL
STRUCTURAL SECTIONS
WA-16, WA-17 & WA-18

CONTR. NO. & A-E ACCT. NO.: 1465
DRAWN: G.I.C.
CHECKED: WEC
A-E APPROVED: DESIGN WEC; PROJ. ENGR. CAS; SCALE As Noted; DATE JAN. 21, 1956

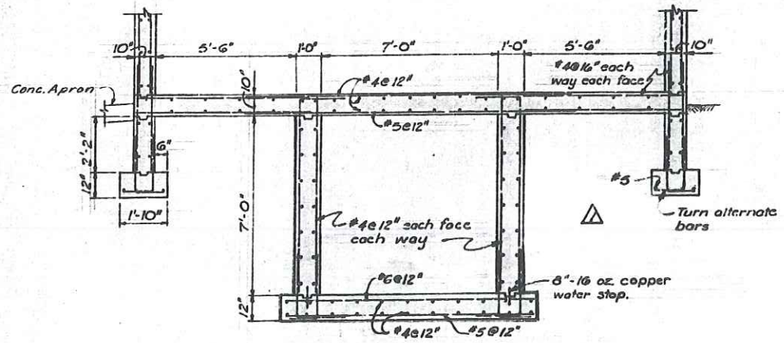
SUBMITTED C.D. Stanek ARCHITECT-ENGINEER
RECOMMENDED Tom Cole A.E.C.
APPROVED R.O. Greening A.E.C.

BLACK & VEATCH
CONSULTING ENGINEERS
KANSAS CITY, MISSOURI

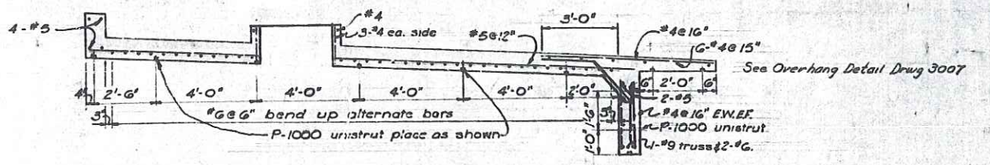
DRAWING NO. LA-BL-3003 | SHEET 12 | OF 32

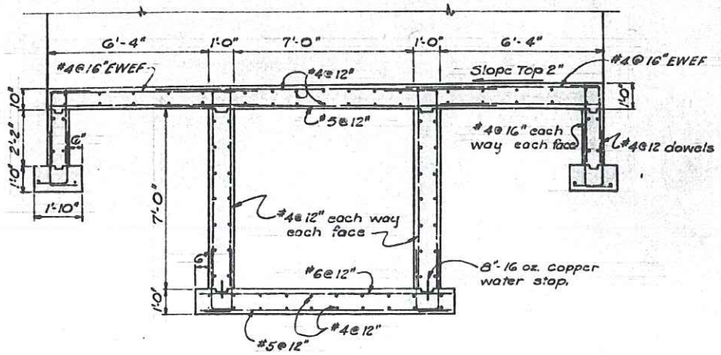
LAB JOB 1756

L.A.S.L. DWG. NO. ENG-C 14974

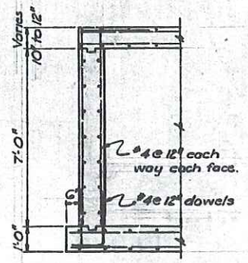


SECTION (K/3001)
Scale 3/8"=1'-0"
WA-16

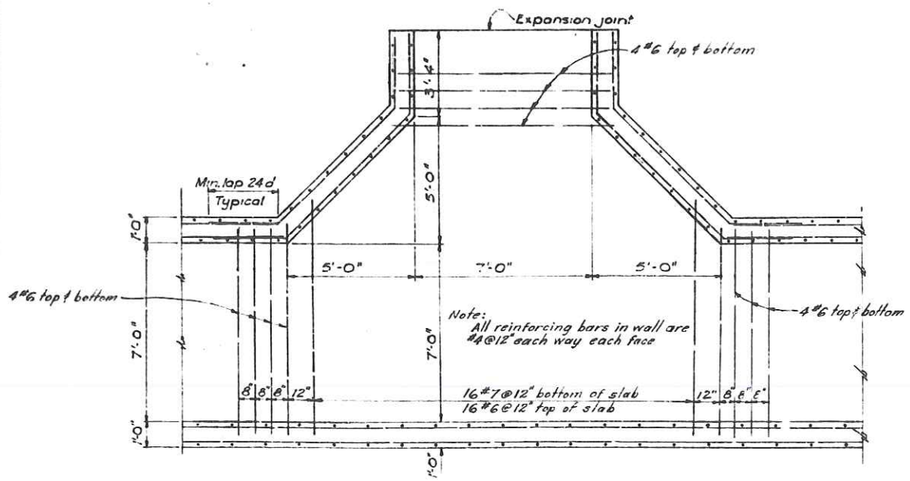




SECTION (L/3001) (L/3006)
Scale 3/8"=1'-0"
WA-16

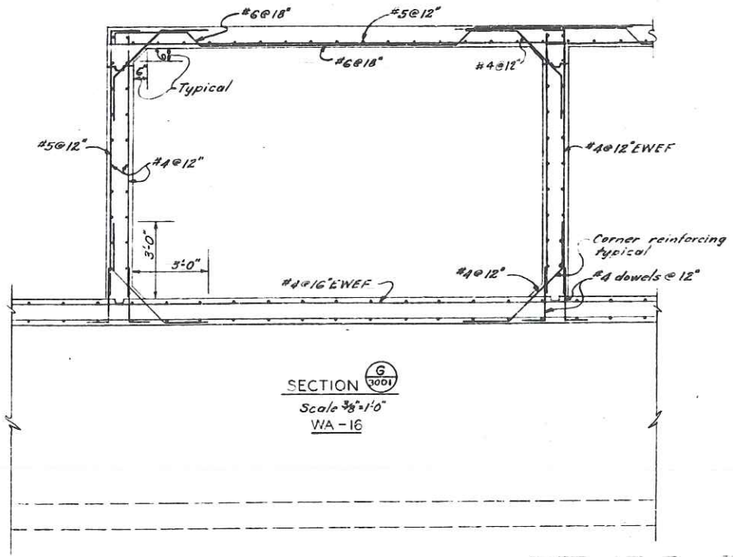


SECTION (J/3001)
Scale 3/8"=1'-0"
WA-16

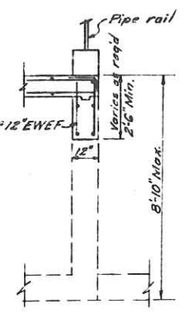


Note: Longitudinal Reinforcing
#6@12" bottom of slab
#5@12" top of slab

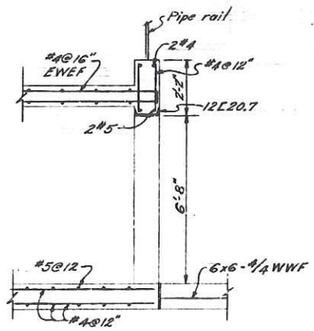
PLAN OF REINFORCING IN FLOOR OF CORRIDOR JUNCTION
Scale 3/8"=1'-0"
WA-16 & 18



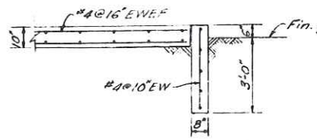
SECTION (G/3001)
Scale 3/8"=1'-0"
WA-16



SECTION (M/3001) (M/3005)
Scale 3/8"=1'-0"
WA-16



SECTION (N/3001)
Scale 3/8"=1'-0"
WA-16



SECTION (F/3001) (UTILITY BLDG)
Scale 3/8"=1'-0"
WA-17

11-8-56	Deleted Waterproofing	QMB	

U. S. ATOMIC ENERGY COMMISSION
LOS ALAMOS FIELD OFFICE
LOS ALAMOS, NEW MEXICO

TA-46 COMPONENT TEST FACILITY
ARCHITECTURAL & STRUCTURAL
STRUCTURAL SECTIONS
WA-16 WA-17 & WA-18

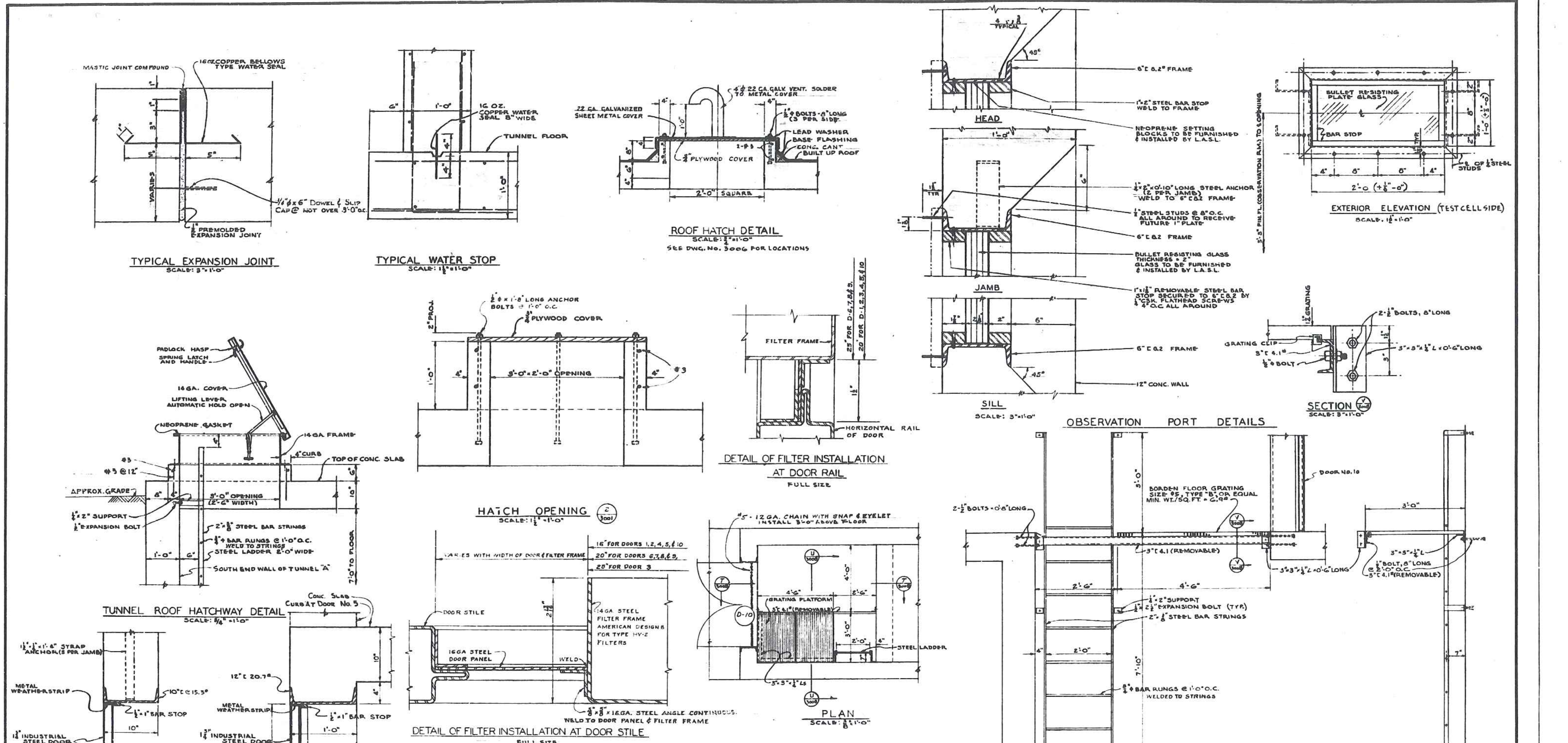
C.A. Shrader — K.E. Manning

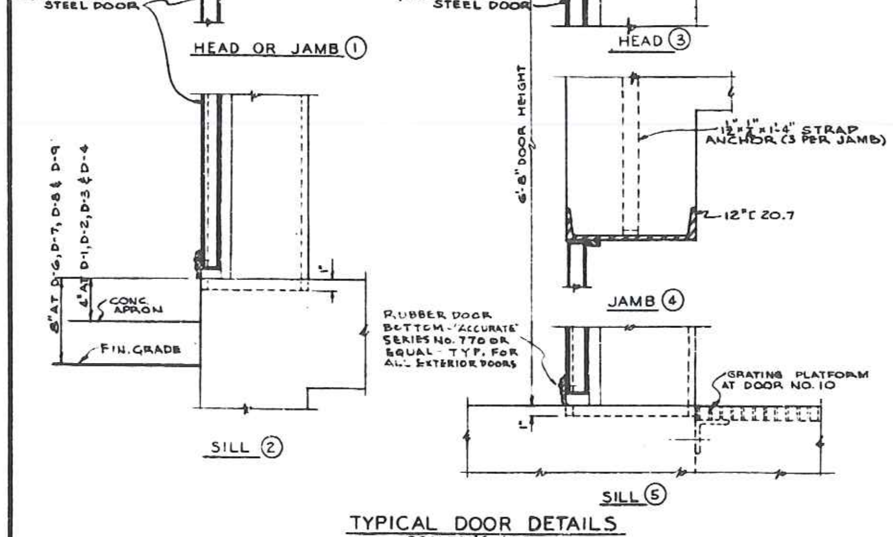
BLACK & VEATCH CONSULTING ENGINEERS

1485 | VDR | WEC | CAS As Noted JAN 1, 1956

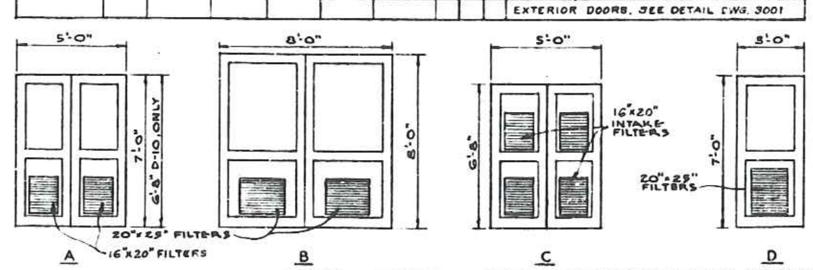
LA-BL-3004 131 32

LAB JOB 1756 L.A.S.L. DWG. NO. ENG-C 14975

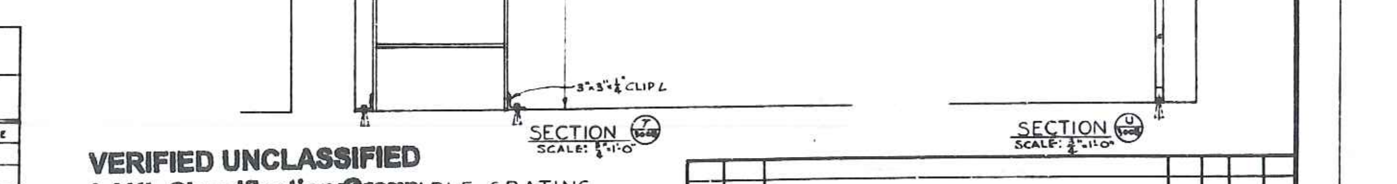




DOOR SCHEDULE										
MARK	TYPE	MAT'L.	SIZE			GLASS	DETAILS			REMARKS
			W	H	T		H	J	S	
D-1, D2 & D-4	A	STEEL	2-2'-6"	7'-0"	1¾"	NONE	1	1	2	R.H. LEAF ACTIVE. VIEWED FROM OUTSIDE
D-3	B	"	2-4'-0"	8'-0"	1¾"	"	1	1	2	DO.
D-5	C	"	2-2'-6"	6'-8"	1¾"	"	3	4	5	DO.
D-6 THRU D-9	D	"	3'-0"	7'-0"	1¾"	"	1	1	2	
D-10	A	"	2-2'-6"	6'-8"	1¾"	"	3	4	5	DO.
										PROVIDE SECURITY EYELETS FOR ALL
										EXTERIOR DOORS. SEE DETAIL DWG. 3001



NOTE: FILTERS & FRAMES SHALL BE AMERICAN HV-2 DESIGN B, OR EQUAL



NO.	DATE	REVISIONS	BY	CH.	PROJ. ENGR.	A.E.C. APP.

U. S. ATOMIC ENERGY COMMISSION
LOS ALAMOS FIELD OFFICE
LOS ALAMOS, NEW MEXICO

TA-46 COMPONENT TEST FACILITY
WA-16
ARCHITECTURAL & STRUCTURAL
DOOR, HATCH, LADDER, GRATING,
& OBSERVATION PORT DETAILS

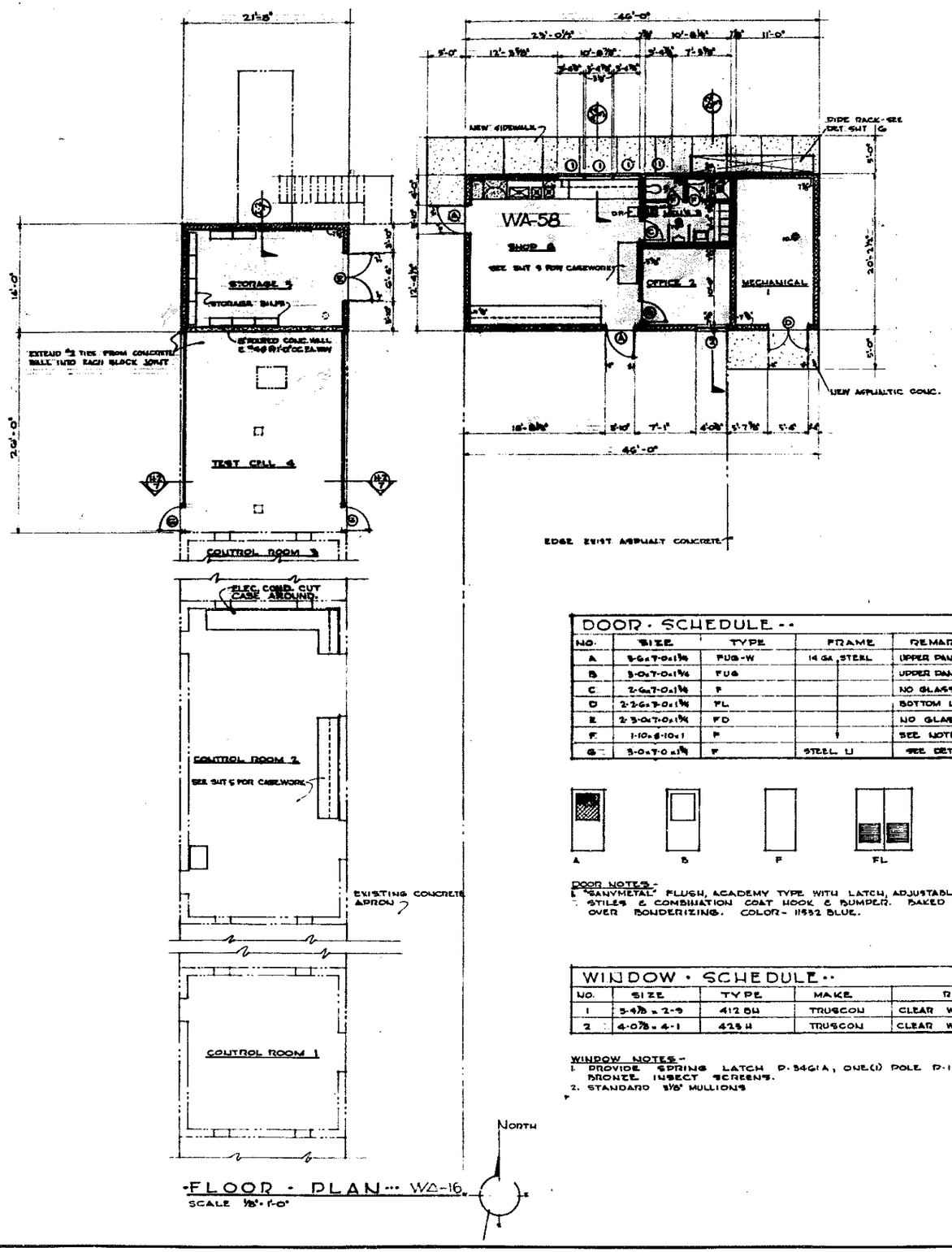
CONTRACT NO. (A-E): 1465
A.E.C. ACCT. NO.:
DRAWN: CFF
CHECKED: WBC
A-E APPROVED
DESIGN: WBC
PROJ. ENGR.:
CHIEF ENGR.: CAB
SCALE: As Noted
DATE: JAN. 21, 1956

SUBMITTED: C.A. Slocomb, ARCHITECT-ENGINEER
RECOMMENDED: A.E.C.
APPROVED: A.E.C.

BLACK & VEATCH
CONSULTING ENGINEERS
KANSAS CITY, MISSOURI

DRAWING NO. LA-BL-3008 | SHEET 17 OF 32

LAB JOB 1756 L.A.S.L. DWG. NO. ENG-C 14979



ROOM · FINISH · SCHEDULE ··

ROOM NAME	NO.	FLOOR: Ceramic Tile	FLOOR: Vinyl Tile	FLOOR: Conc. Tile	FLOOR: Concrete	FLOOR: Concrete Dsk.	FLOOR: Plastic	FLOOR: S.G.P. Tile	FLOOR: Acoust. Tile	WALLS: S.G.P. Tile	WALLS: Ceramic Tile & Vinyl	CEILING: Acoust. Tile	BASE	REMARKS
MECHANICAL	1		●		●									
OFFICE	2		●		●				●			●		SUSPEND CEILING TO 9'-0"
MEN'S TOILET	3	●			●					●		●		
SHOWER	4	●			●			●				●		
WATER CLOSET	5	●			●					●		●		
SHOP	6		●		●									
STORAGE	5		●		●									EXISTING FLOOR SLAB
TEST CELL	4		●		●									EXISTING FLOOR SLAB
CONTROL ROOM	3	●										●		
CONTROL ROOM	2	●										●		
CONTROL ROOM	1	●										●		

DOOR · SCHEDULE ··

NO.	SIZE	TYPE	FRAME	REMARKS
A	3-0 x 7-0 x 1¾	FUB-W	14 GA. STEEL	UPPER PANEL CLEAR WIRE GLASS
B	3-0 x 7-0 x 1¾	FUB		UPPER PANEL CLEAR GLASS
C	2-6 x 7-0 x 1¾	F		NO GLASS
D	2-2 x 7-0 x 1¾	FL		BOTTOM LOUVER-ADJUSTABLE
E	2-3 x 7-0 x 1¾	FD		NO GLASS
F	1-10 x 6-10 x 1	F		SEE NOTE 1 BELOW
G	3-0 x 7-0 x 1¾	F	STEEL U	SEE DETAILS SHT 7

DOOR NOTES -
1. "SANYMETAL" FLUSH, ACADEMY TYPE WITH LATCH, ADJUSTABLE HINGES, SIDE STILES & COMBINATION COAT HOOK & BUMPER. BAKED ENAMEL FINISH OVER BONDERIZING. COLOR - 11532 BLUE.

WINDOW · SCHEDULE ··

NO.	SIZE	TYPE	MAKE	REMARKS
1	3-4⅞ x 2-9	412 SH	TRUSCON	CLEAR WIRE GLASS
2	4-0⅞ x 4-1	424 H	TRUSCON	CLEAR WIRE GLASS

WINDOW NOTES -
1. PROVIDE SPRING LATCH P-3461A, ONE(1) POLE P-11141 (6'-8" LONG) & BRONZE INSECT SCREENS.
2. STANDARD 5⅛" MULLIONS

MATERIALS · SPECIFICATIONS ···

CERAMIC TILE — CERAMIC FLOOR TILE, UN-GLAZED, STANDARD PATTERN SIMILAR TO 'MOSAIC' TILE CO Nº 2185-N2. COLOR TO BE "VELVETONE" Nº 149. MOSAIC TILE CO., OR EQUAL.

VINYL TILE & BASE — ⅛" HOMOGENEOUS VINYL TILE Nº LT-311 "SANDPIPER" BY VINYL PLASTICS INC., 1825 ERIE AVE., SHEBOYGAN, WIS. OR EQUAL. BASE TO BE 4" HIGH, COLOR - BLACK.

CORRUGATED PLASTIC — 3'-0" x 8'-0" CORRUGATED PLASTIC OR FIBERGLAS SUITABLE FOR HEAVY DUTY USE EXTERIOR. MUST BE CAPABLE OF WITHSTANDING 30 PSF WINDLOAD WITHOUT SUFFICIENT DEFLECTION TO CAUSE PANELS TO BLOW OUT OF GUIDES.

S.G.P.T. — STANDARD STRUCTURAL GLAZED FACING TILE, GT SERIES, VARIOUS SIZES & SHAPES AS REQUIRED. COLOR - BUFF.

ACOUSTICAL TILE — TILE TO BE "TRAVERTONE" BY ARMSTRONG OR EQUAL. MASTIC APPLICATION ON GYPSUM BOARD & SUSPEND AS DETAILED. SEE SHT 3.

MIRROR — 18 x 24 COPPER BACK, MIRROR QUALITY GLASS & CHROME-BRASS EDGES. ONE (1) REQ.
WASTE BASKET — ONE (1) REQ.
PAPER TOWEL CABINET — ONE (1) REQ.
TOILET PAPER HOLDER — ONE (1) REQ.
VENETIAN BLIND — ONE (1) REQ. FOR OFFICE 2. CUSTOM FIT TO WINDOW. CREAM OR IVORY COLOR.
LOCKERS — FIVE (5) STANDARD DOUBLE TIER LOCKERS 12"WIDE x 15"DEEP. PROVIDE LEGS.
STORAGE BINS — "EQUIPTO" BINS OR EQUAL AS FOLLOWS:
TWO (2) EACH Nº 1872
TWO (2) EACH Nº 960
TWO (2) EACH Nº 1882
TWO (2) EACH Nº 1860
ONE (1) EACH Nº 1290
SHIP ALL UNITS KD & ASSEMBLE AT JOB SITE.
"EQUIPTO", AURORA, ILL.

THIS JOB MUST BE INSPECTED, AND ANY CHANGES APPROVED BY ENG-4
FANCHER PHONE 7-4656

FLOOR · PLAN ··· WA-16

SCALE ⅛" = 1'-0"

NO.	DATE	REVISIONS	BY	CHKD	PROJ. ENG.	DIV. G. L.

AUTHORIZED FOR CONSTRUCTION — HEALTH — SAFETY — FIRE PROT. — SEC. — ENG. DEPT. — BWS

LOS ALAMOS SCIENTIFIC LABORATORY
ENGINEERING DEPARTMENT
UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

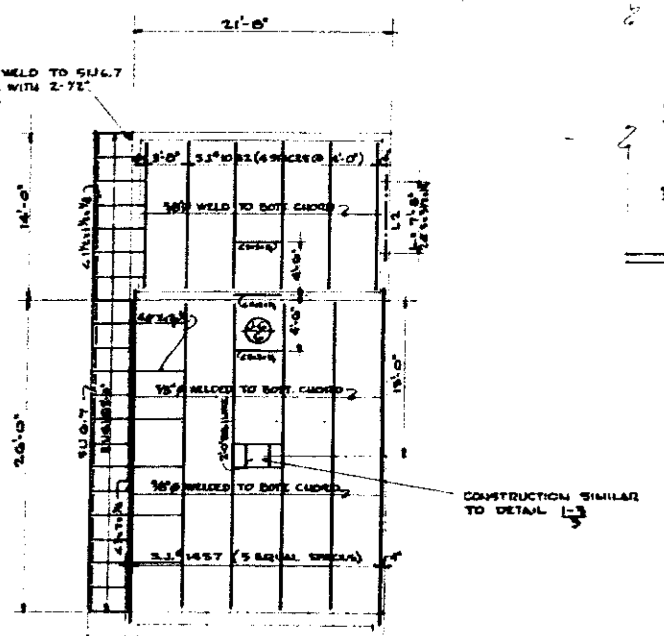
COMPONENT · TEST · FACILITY ·· MODIFICATIONS · & · ADDITIONS ···

ARCHITECTURAL PLAN; DOOR, WINDOW & ROOM FINISH SCHEDULES; MATERIAL SPECIFICATIONS

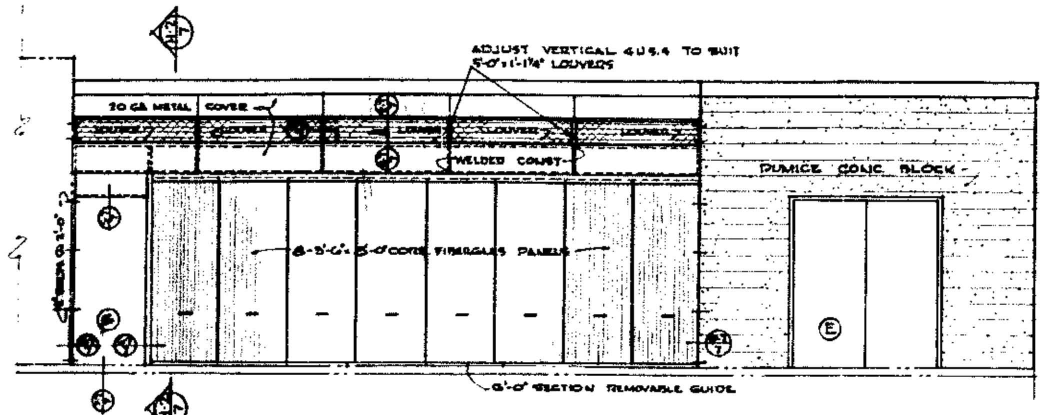
BLDGS WA-16 & 58 — TA-46

CHECKED JFZ	RECOMMENDED GROUP LEADER R.T. McDonald	APPROVED ENG. DEPT. OFFICE	
PROJ. ENG. JFZ			
DRAFTSMAN R. TURNER	DATE JAN. 23, 1961	DRAWING NO. ENG-C-26081	
DRAWN R. TURNER			
SCALE AS SHOWN	SHEET 2 OF 23		

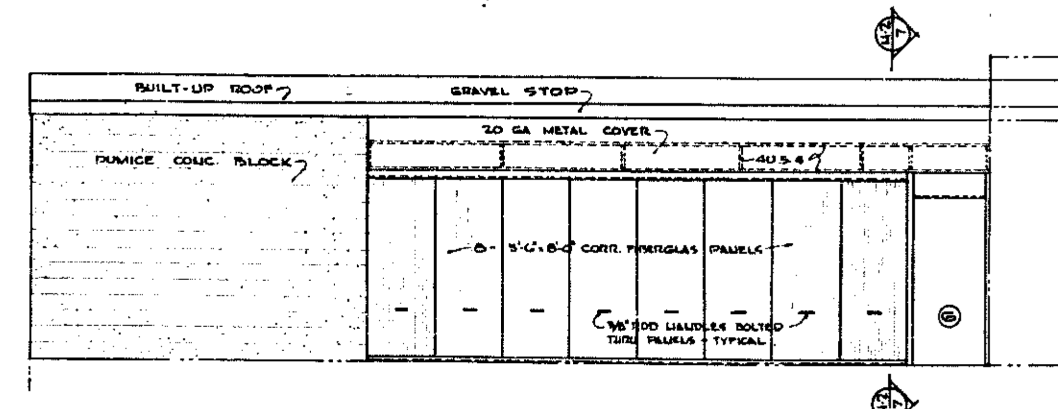
C.&A. NO. 16 — LAB. JOB NO. 2391-46



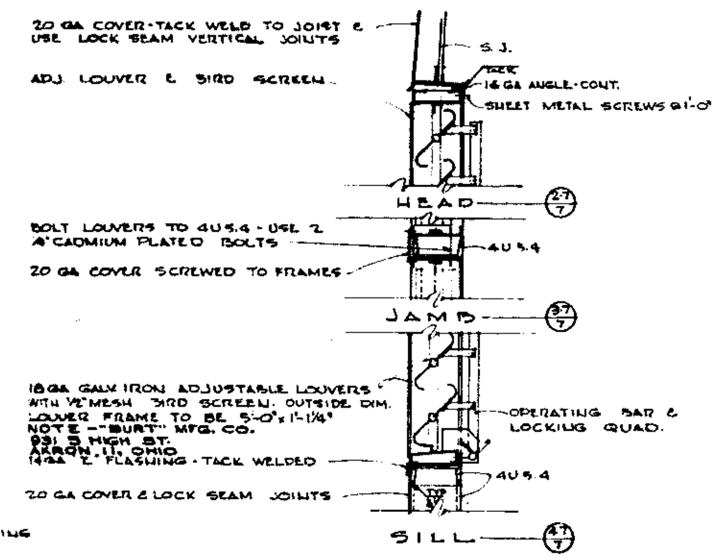
·ROOF · FRAMING · PLAN · WA-16···
SCALE 1/8"=1'-0"
(OVER TEST CELL 4 & NEW STORAGE ROOM)



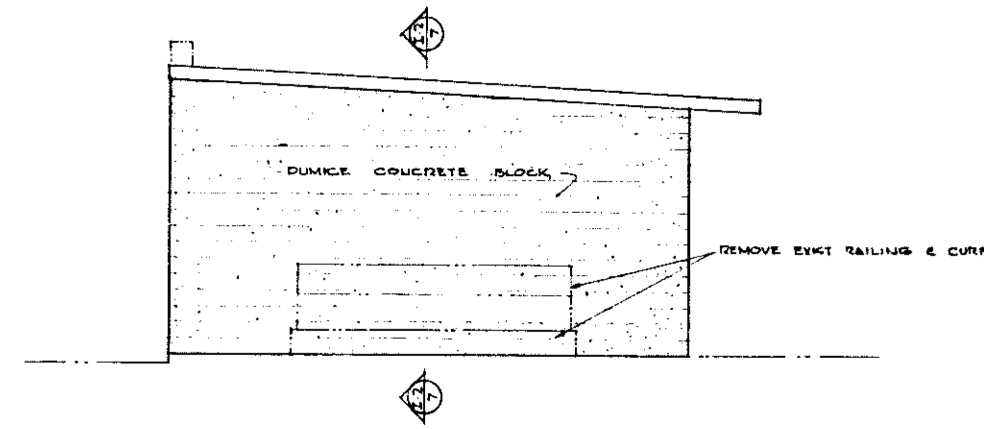
·EAST · ELEV · TEST · CELL · 4 · & · STORAGE · WA-16···
SCALE 1/8"=1'-0"



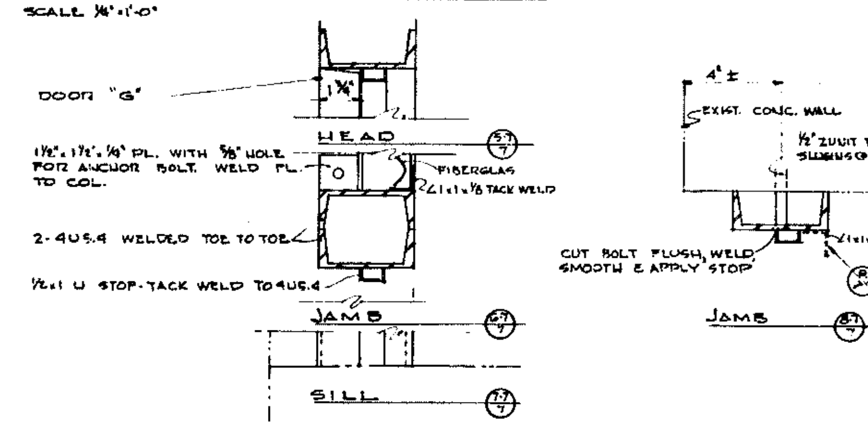
·WEST · ELEV · TEST · CELL · 4 · & · STORAGE · WA-16···
SCALE 1/8"=1'-0"



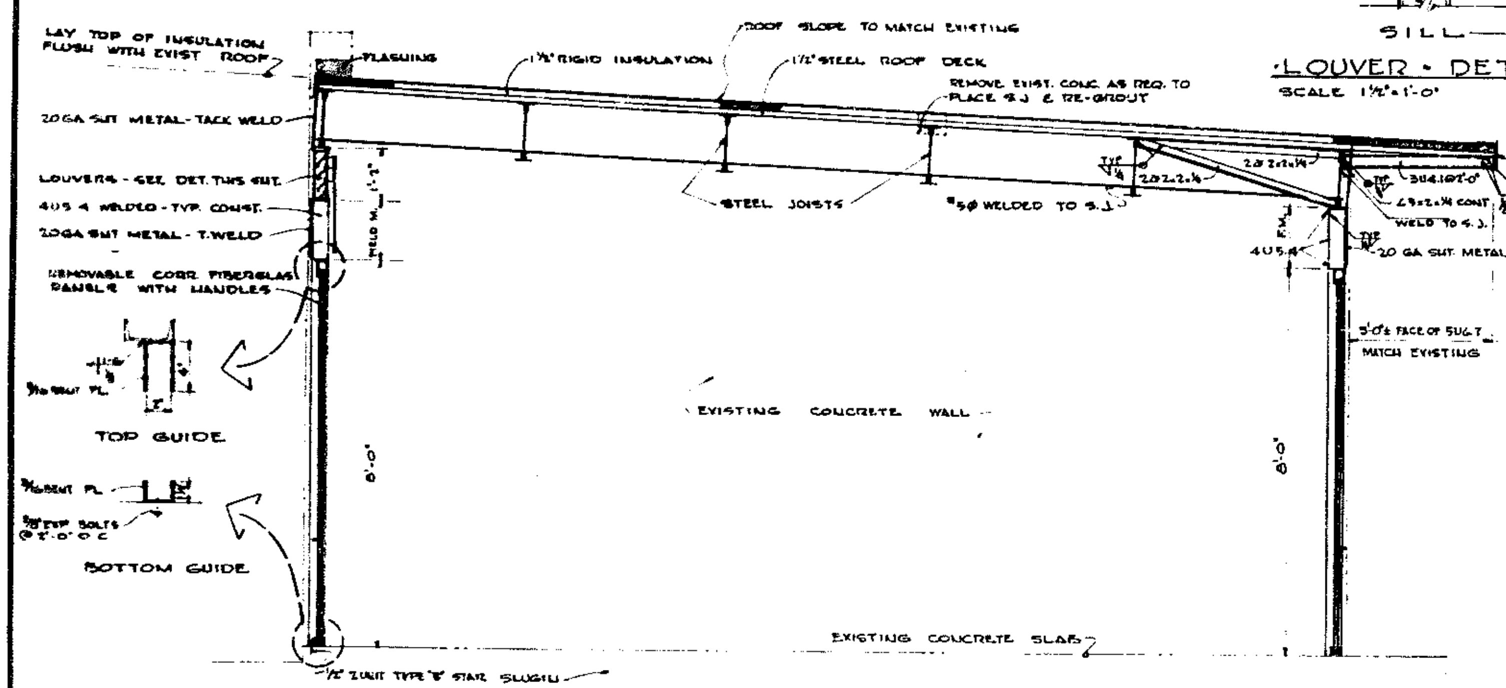
·LOUVER · DETAILS···
SCALE 1 1/2"=1'-0"



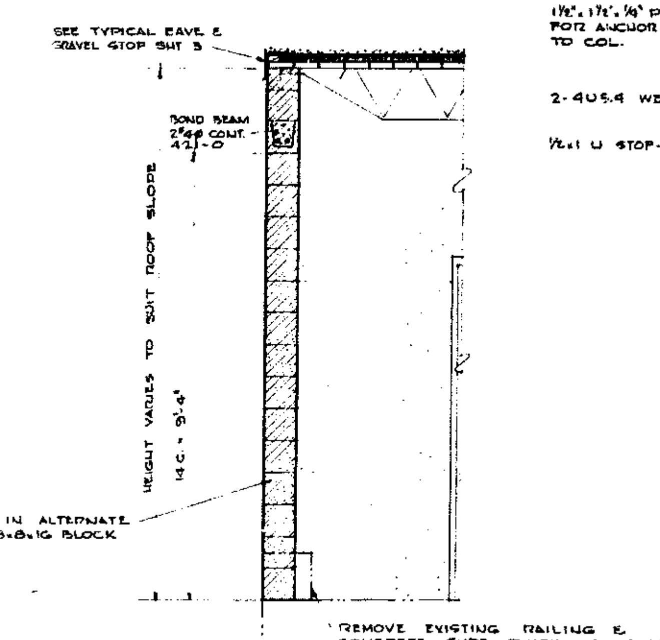
·NORTH · ELEV · STORAGE · WA-16···
SCALE 1/8"=1'-0"



·DOOR · "G" · FRAME · DETAILS···
SCALE 3"=1'-0"



·SECTION · (H-2/7) ··CELL · 4 · WA-16···
SCALE 1/2"=1'-0"



·SECTION · (I-2/7) · WA-16···
SCALE 1/2"=1'-0"

THIS JOB MUST BE INSPECTED, AND ANY CHANGES APPROVED BY ENG-4
FANCHER PHONE 7-4656

NO.	DATE	REVISIONS	BY	CHKD	GRP LDR.	ENG D.O.

LOS ALAMOS SCIENTIFIC LABORATORY
ENGINEERING DEPARTMENT
UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

COMPONENT · TEST · FACILITY ··
MODIFICATIONS · & · ADDITIONS···

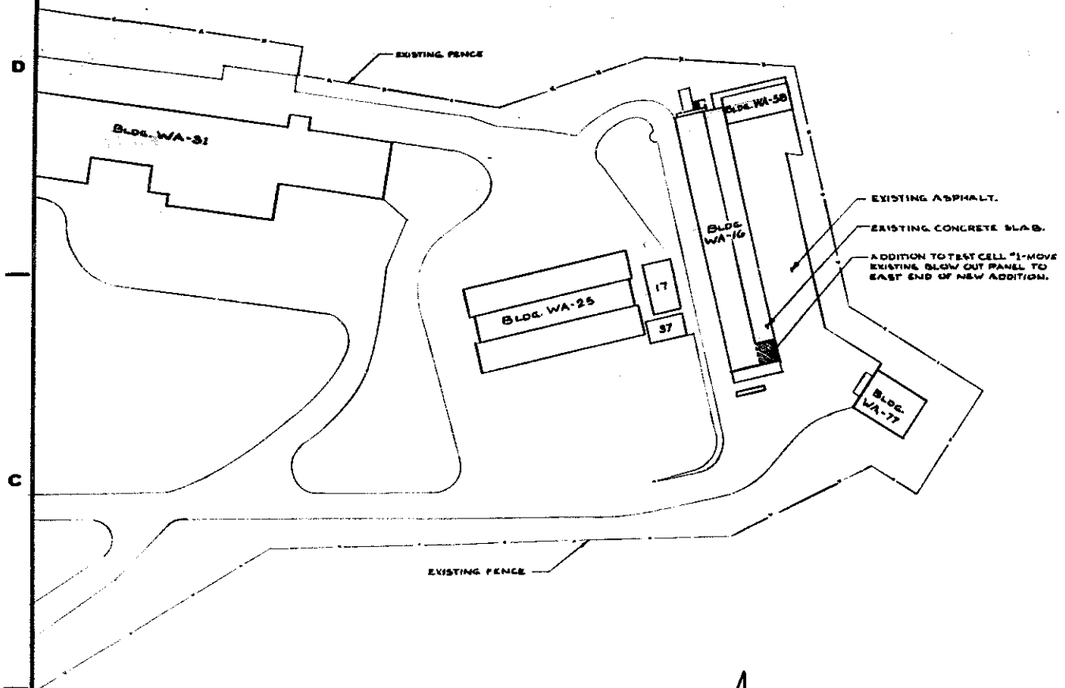
ROOF FRAMING PLAN, DETAILS, ARCHITECTURAL ELEV, CROSS SECTIONS FOR CELL 4 & STOR. RM WA-16

BLDGS WA-16 & 58 — TA 46

AUTHORIZED FOR: HEALTH — SAFETY — FIRE PROT. — SEC.

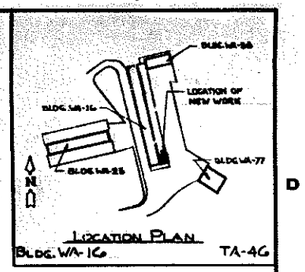
CHECKED: JPZ
PROJ. ENG.: JPZ
DESIGNER: R. TURNER
DRAWN: R. TURNER
SCALE: AS SHOWN
RECOMMENDED: R. M. McDonald, GROUP LEADER
DATE: JAN. 23, 1961
SHEET 7 OF 23
APPROVED: ENG. DEPT. OFFICE
DRAWING NO. ENG-C-26086

C&A NO. 16 LAB. JOB NO. 2391-46



PLOT PLAN
SCALE: 1"=50'

REINFORCING BAR SCHEDULE					
CODE	LOCATION	TYPE	NO. REQ'D	SIZE	LENGTH
311-7	BLOCK WALL VERT.		24	3	11-7
314-6	CONC. SLAB E.-W.		17	3	14-6
316-0	CONC SLAB N.-S.		15	3	16-0
414-6	BOND BEAM		4	4	14-6



LOCATION PLAN
BLDG. WA-16 TA-46

GENERAL NOTES

1 ALL CONCRETE FOR THIS PROJECT IS TO TEST 3000 PSI @ 28 DAYS.

2 APPLY RIGID INSULATION ON METAL ROOF DECK WITH SUITABLE METAL FASTENER OR NON-FLAMMABLE "LEXSEAL" CEMENT.

3 PAINT EXTERIOR SIDE OF BLOCK WALL WITH "KENTEX" GREY ITEM #52.
PAINT ALL EXPOSED STEEL WITH TWO (2) COATS OF "DULUX" LIGHT GREY ITEM #49.

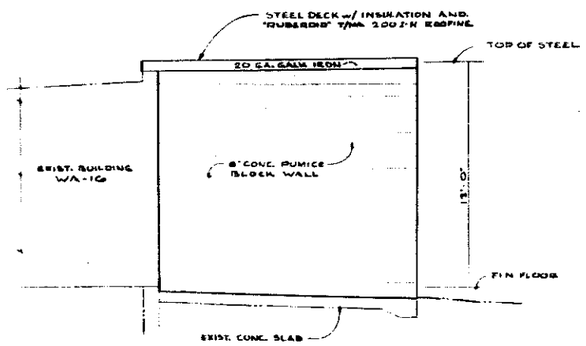
4 WHERE BRAND NAMES OR PROPRIETARY ITEMS ARE SPECIFIED, ITEMS OF EQUAL QUALITY, FUNCTION, SIMILAR APPEARANCE AND SIZE MAY BE SUBSTITUTED IN LIEU THEREOF PROVIDED SUCH SUBSTITUTION IS APPROVED PRIOR TO INSTALLATION BY AUTHORIZED PERSONS.

DOOR SCHEDULE

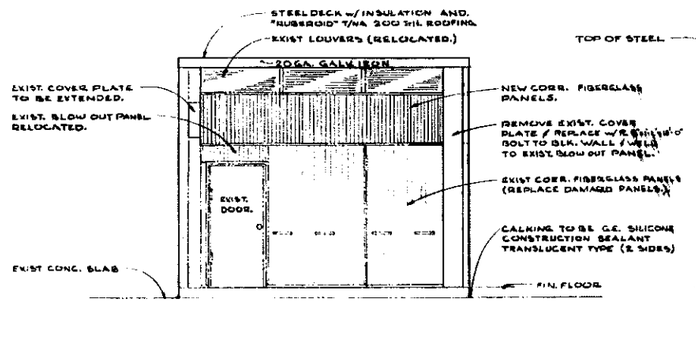
DOOR "A" 1- 3'-0" x 7'-2" x 1¾" 14 M. DOOR AND H.M. FRAME

HARDWARE (RUSSWIN)

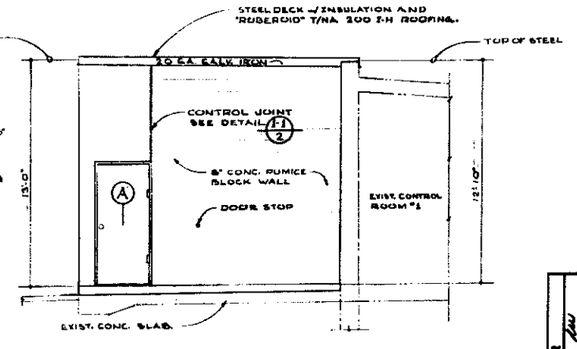
DOOR "A" 1½ PRS. BUTTS #BB51¼ NRP ALL T.M.S.
1 - LOCKSET #2058 BKS. ROCKFORD -/ BEST CORE
1 - DOOR STOP #349¾



SOUTH ELEVATION
SCALE: ¼"=1'-0"



EAST ELEVATION
SCALE: ¼"=1'-0"



NORTH ELEVATION
SCALE: ¼"=1'-0"

THIS JOB MUST BE INSPECTED, AND ANY CHANGES APPROVED BY ENG-4 McNILLAN PHONE 82366

AUTHORIZED FOR
HEALTH N.A.
SAFETY G.A.E.
FIRE PROT. N.A.
SEC.

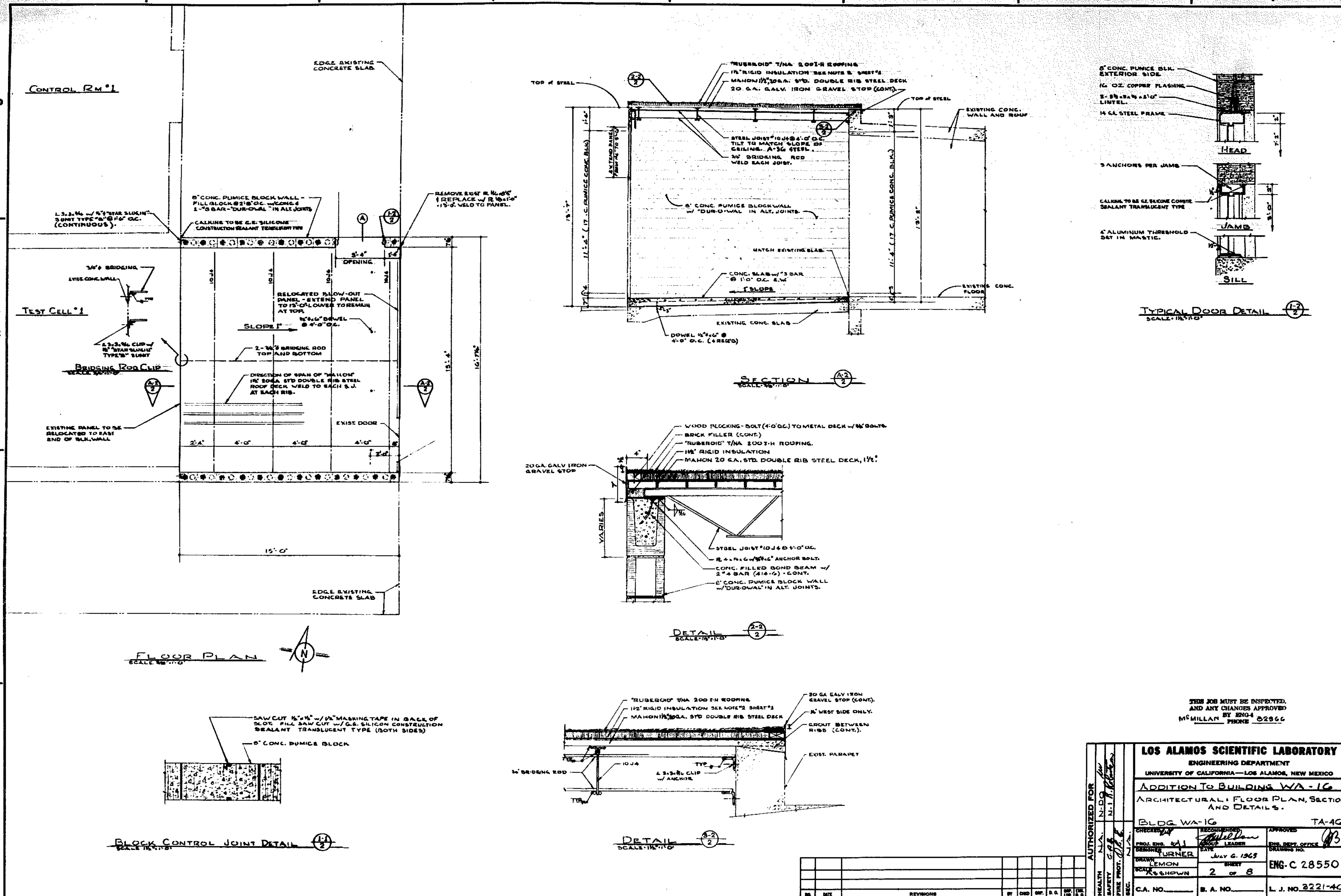
LOS ALAMOS SCIENTIFIC LABORATORY
ENGINEERING DEPARTMENT
UNIVERSITY OF CALIFORNIA—LOS ALAMOS, NEW MEXICO

ADDITION TO BUILDING WA-16
ARCHITECTURAL: PLOT PLAN, LOCATION PLAN, ELEVATIONS, BAR. SCH, AND DOOR SCH.
BLDG WA-16 TA-46

CHECKED P.M. PROJ. ENG. W.J.	RECOMMENDED GROUP LEADER	APPROVED ENG. DEPT. OFFICE	
DESIGNED TURNER	DATE JULY 6, 1966	DRAWING NO. ENG-C 28549	
DRAWN LENOSE	SHEET 1 OF 8		
SCALE AS SHOWN			
C.A. NO.	B. A. NO.	L. J. NO. 3221-46	

NO.	DATE	REVISIONS	BY	CHKD	GRP.	E. E.	DEPT. ENG.	ENG. DEPT.

REC'D IN LOGGED IN TO VAULT JH



THIS JOB MUST BE INSPECTED. AND ANY CHANGES APPROVED BY ENG-4
McMILLAN PHONE 82866

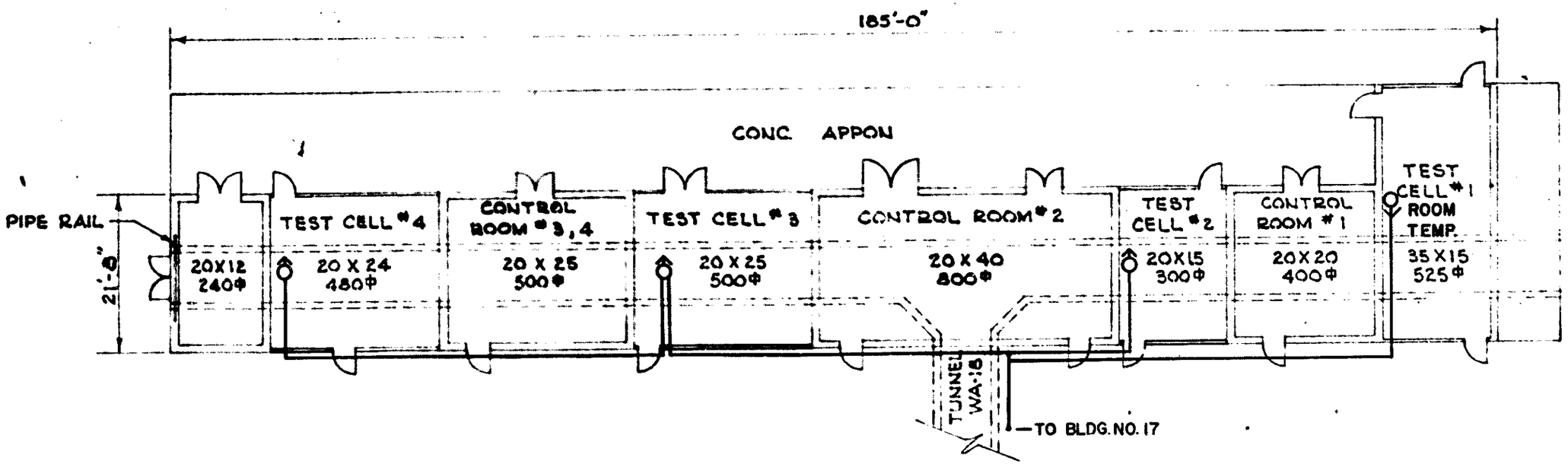
LOS ALAMOS SCIENTIFIC LABORATORY
ENGINEERING DEPARTMENT
UNIVERSITY OF CALIFORNIA—LOS ALAMOS, NEW MEXICO

ADDITION TO BUILDING WA-16
ARCHITECTURAL: FLOOR PLAN, SECTION, AND DETAILS.
BLDG WA-16 TA-46

CHECKED	RECOMMENDED	APPROVED
PROJ. ENG.	GROUP LEADER	ENG. DEPT. OFFICE
DESIGNED TURNER	DATE JULY 6, 1965	DRAWING NO.
DRAWN LEMON	SHEET 2 OF 8	ENG-C 28550
SCALE AS SHOWN		
C.A. NO.	B. A. NO.	L. J. NO. 3221-46

AUTHORIZED FOR: HEALTH N.A. / SAFETY / FIRE PROT. / SEC. N.A.

NO.	DATE	REVISIONS	BY	CHKD	GRP LDR.	ENG D.O.
1	6-67	REVISED TO JUNE-1967	CT			



AUTHORIZED FOR	
HEALTH	
SAFETY	
FIRE PROT.	
SEC.	

TOTAL SQ. FT. 3745

LOS ALAMOS SCIENTIFIC LABORATORY
ENGINEERING DEPARTMENT
UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

EQUIP SURVEILLANCE SYS (ESS)
FLOOR PLAN
BLDG WA-16 TA-46

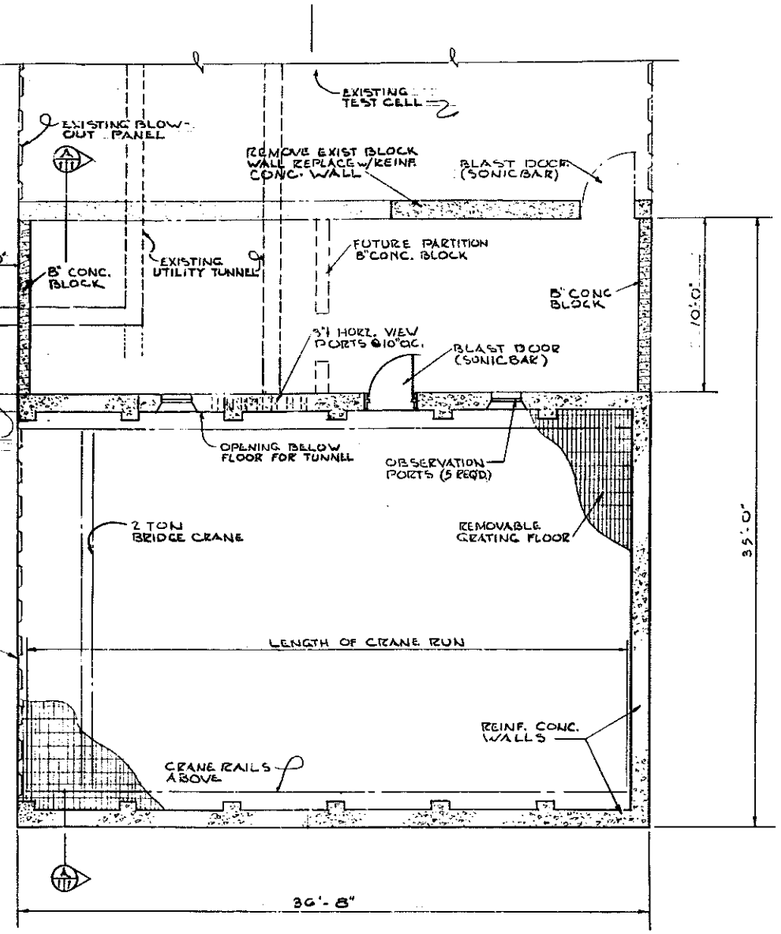
APPROVALS:
ENG. GROUP 3 SEQ
DIVISION:
ENG. DEPT. OFFICE: EHC

DESIGN:
DESIGNER: TRASK
PROJ. ENG.:

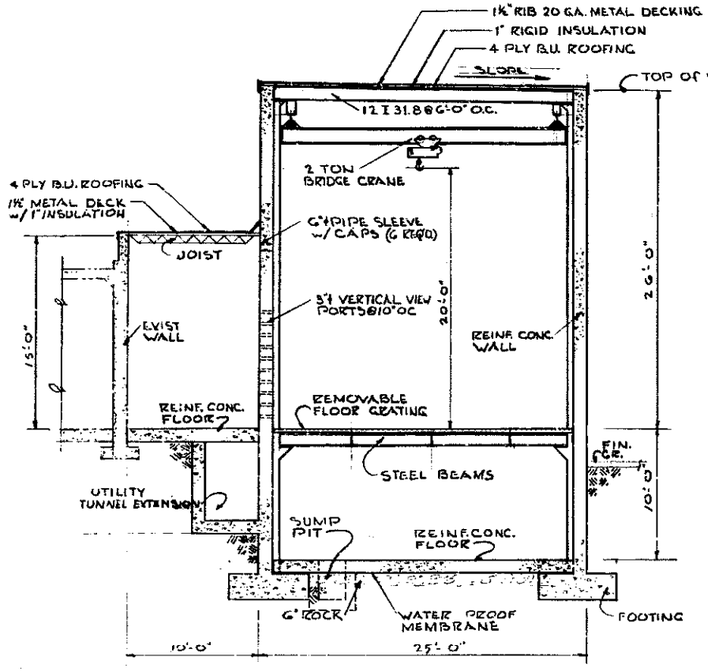
DATE 9/15/66
SCALE 1/16"=1'-0"
SHEET 1 OF 1
SKETCH NO. ENG.R 3852

K-E ALBANENE LA 1662

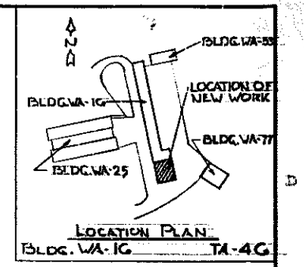
REC'D LOGGED TO VAULT INFO. SHOWN CURRENT AS OF _____ B. A. NO. _____ J. O. NO. _____ LAB. JOB NO. 3546



FLOOR PLAN
SCALE 1/4"=1'0"



SECTION
SCALE 3/64"=1'0"



LOCATION PLAN
BLDG. WA-16 TA-46

CIVIL & STRUCTURAL NOTES

1. RELOCATE 40' OF GUARDRAIL - INSTALL 30' OF NEW GUARDRAIL.
2. 60 SQ. YD. OF NEW ASPHALT PAVEMENT WITH 6" BASE.

ELECTRICAL NOTES

1. FURNISH AND INSTALL 8 - 2 LAMP, 430 MA, 8-FT. FLUORESCENT FIXTURES, DAYBRITE #9021I, IN CONTROL ROOM.
2. FURNISH AND INSTALL 12 - 2 LAMP, 1500 MA, 8-FT. FLUORESCENT FIXTURES, DAYBRITE #7021I-8, IN WORK BAY.
3. FURNISH AND INSTALL 6 - 2 LAMP, 430 MA, 4-FT. FLUORESCENT FIXTURES, DAYBRITE #4021I, IN WORK BAY LOWER LEVEL.
4. RELOCATE 250 KVA ROGUE GENERATOR AND REDUCED VOLTAGE STARTER FROM BLDG. WA-31 TO EXTENSION. INSTALL CAPACITOR BANKS, TRANSFORMER, AND COIL.
5. INSTALL 3 - #2/0, 5 KV CABLE, 1 #3 GROUND, 4" C. FROM EXISTING SUBSTATION TO RELOCATED 250 KVA ROGUE GENERATOR. 36-FT. UNDERGROUND AND 200-FT. FASTENED TO BLDG. WA-16.
6. INSTALL 2-3 #2 RUN, 1 #8 GROUND, 2" C. RUNS FROM BLDG. WA-17 TO NEW 480 V. 3ϕ AND 120/208 V. 3ϕ PANELS IN EXTENSION. 40-FT UNDERGROUND AND 120-FT. FASTENED TO BLDG. WA-16.
7. INSTALL 60-FT. OF STANDARD MULTI-OUTLET ASSEMBLY IN CONTROL ROOM AND WORK BAY. INSTALL 8 DUPLEX OUTLETS IN WORK BAY LOWER LEVEL.
8. INSTALL 60 A-3P OUTLET FOR WELDER IN WORK BAY.
9. FURNISH POWER TO BRIDGE CRANE, 50 HP BOOSTER PUMP, AND 5 HP EXHAUSTER.
10. INSTALL APPROXIMATELY 90-FT. OF 12" CABLE TRAY FROM 6" PIPE SLEEVES TO EXPERIMENT AREA.
11. EXTEND EXISTING 8 - ¼ x 12" ALUMINUM BUS AND ENCLOSURE ABOUT 25-FT. INTO WORK BAY LOWER LEVEL. TERMINATE BUS IN EXPANDED METAL CAGE. EXTEND CONTROL INTO NEW CONTROL ROOM.
12. DUPLICATE EXISTING 520-FT. 18" CABLE TRAY RUN WITH 20 1000 MCM THW CONDUCTORS FROM BLDG. WA-31 TO BLDG. WA-16. EXTEND 40 1000 MCM THW CONDUCTORS IN CABLE TRAY INTO WORK BAY AND EXTEND TO SOUTH SIDE OF BUILDING. FABRICATE A WEATHERPROOF 6'± 8'± 8' ENCLOSURE OVER TEST CELL 1 TO ENCLOSE CABLE JUNCTION AND ROOF PENETRATION TO EXISTING TEST CELL 1. EXTEND CONTROL FROM CONTROL ROOM 1 TO NEW CONTROL ROOM.
13. INSTALL TELEPHONE AND EXTEND P.A. SYSTEM INTO CONTROL ROOM.
14. INSTALL HYDROGEN DETECTION SYSTEM.
15. RELOCATE EXISTING TUNNEL EXHAUST FAN.
16. EXTEND COUNTERPOISE AND INSTALL LIGHTNING ARRESTERS.

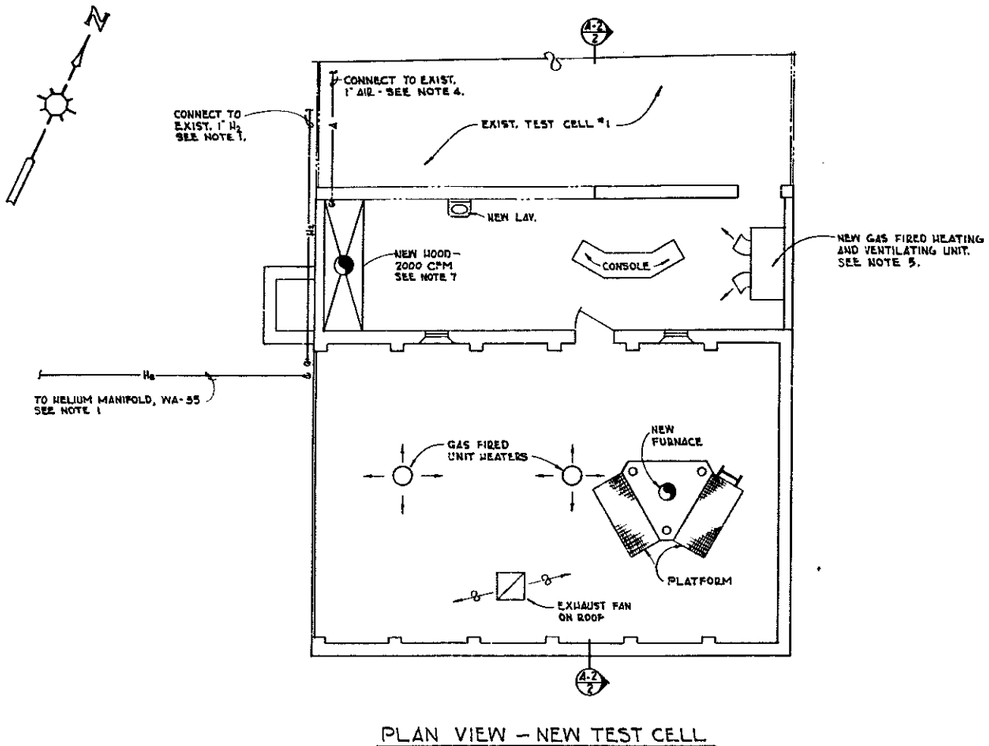
AUTHORIZED FOR
HEALTH N.A.
SAFETY C.A.F.
FIRE PROT. C.A.F.
SEC. N.A.

NO.	DATE	REVISIONS	BY	CHKD	GRP.	D. D.	GRP. LDR.	ENG. D. D.

LOS ALAMOS SCIENTIFIC LABORATORY
ENGINEERING DEPARTMENT
UNIVERSITY OF CALIFORNIA—LOS ALAMOS, NEW MEXICO

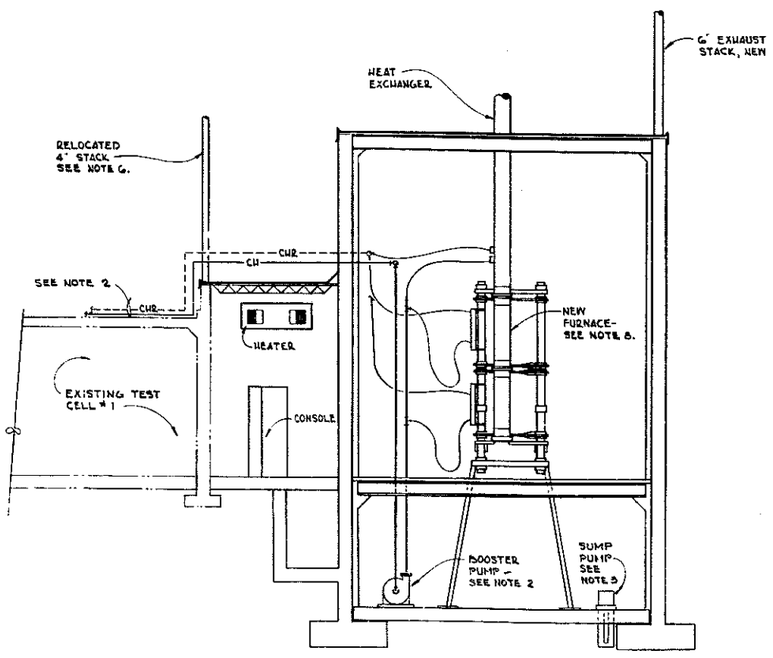
TEST CELL EXPANSION
CRITERIA
BLDG WA-16 TA-46

CHECKED JFZ CRF	RECOMMENDED GROUP LEADER	APPROVED ENG. DEPT. OFFICE
PROJ. ENG. JFZ		
DESIGNED DYER	DATE JAN. 31, 1967	DRAWING NO. ENG-C 34954
DRAWN L.A. MON	SHEET 1 OF 3	
SCALE AS SHOWN	C.A. NO.	B. A. NO. L. J. NO. 3583-46



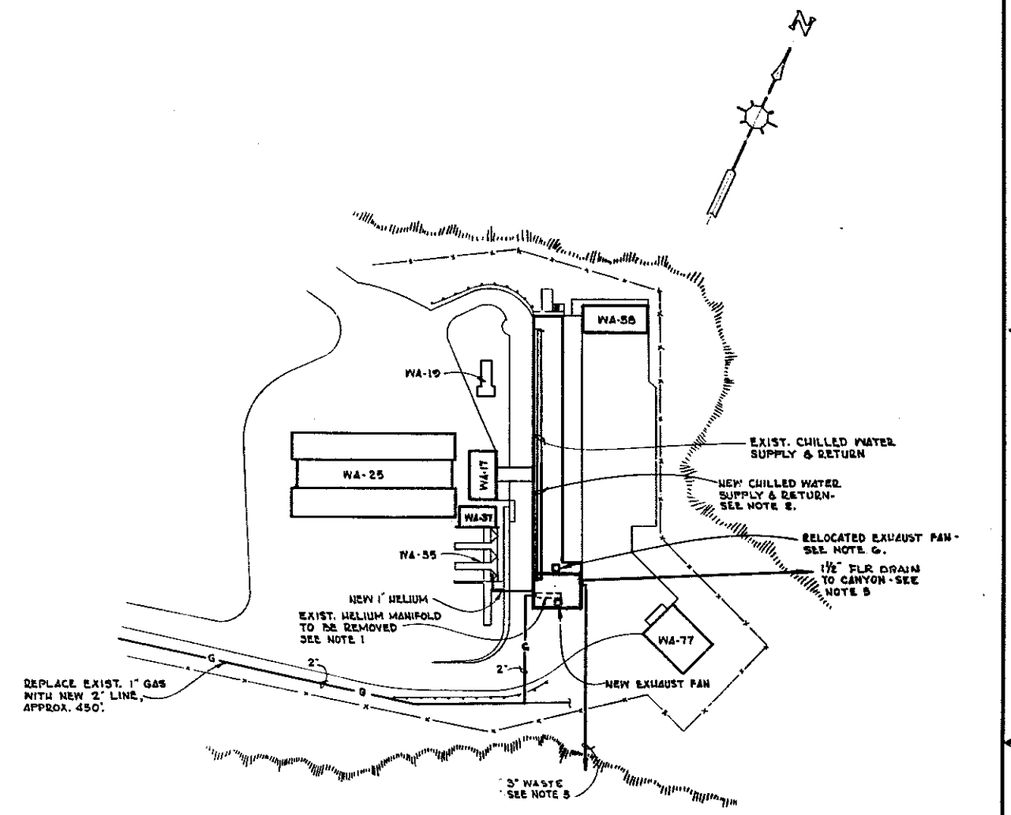
PLAN VIEW – NEW TEST CELL

SCALE: 3/16" = 1'-0"



SECTION A-2/2

SCALE: 3/16" = 1'-0"



SITE PLAN – TA-46

SCALE: 1" = 50'

GENERAL NOTES

1. REMOVE EXISTING 3 TRAILER MANIFOLD SOUTH OF BLDG. WA-16 AND EXTEND 1" 3600 LB HYDROGEN LINE TO NEW TEST CELL. EXTEND 1" HELIUM LINE FROM EXISTING MANIFOLD WA-35. BLOCK AND BLEED VALVES SHOULD BE PROVIDED OUTSIDE OF CELL.
2. REPLACE APPROX. 60'-0" OF 4" DIA. COOLING WATER PIPING ON ROOF OF BLDG. WA-16 WITH 6" DIA. AND EXTEND PIPING TO NEW CELL WITH 4" DIA. DROPS AND VALVES. NEW CELL TO BE SUPPLIED WITH APPROX. 600 GPM WATER AT 100 PSI, WITH NEW 40 HP BOOSTER PUMP LOCATED IN THE BASEMENT OF NEW STRUCTURE.
3. INSTALL ½ HP SUMP PUMP IN BASEMENT WITH 1½" FLR DRAIN LINE EXTENDING TO THE CANYON APPROX. 200' EAST. NEW SINK WITH 3" DRAIN LINE INSTALLED IN CONTROL ROOM TO BE EXTENDED TO EXIST. DRAIN FIELD 250' SOUTH.
4. EXTEND 1", 100 LB. AIR LINE TO NEW TEST CELL & PROVIDE FILTER AS REQ'D.
5. INSTALL GAS FIRED H & V UNIT FOR CONTROL ROOM, APPROX. 5000 CFM. TEST CELL TO BE PROVIDED WITH GAS FIRED UNIT HEATERS & EXHAUST FAN.
6. RELOCATE EXIST. 4" DIA. STACK, ON PAD SOUTH OF TEST CELL 1, TO ROOF AND RECONNECT EXIST. FURNACE EXHAUST PIPING TO STACK. RELOCATE EXIST. TUNNEL EXHAUST FAN ON ROOF OF NEW STRUCTURE.
7. PROVIDE 2000 CFM ASSEMBLY HOOD FOR CELL WITH 1½ HP EXHAUST FAN AND ABSOLUTE FILTERS TO BE LOCATED ON ROOF.
8. MAKE ALL NECESSARY GAS AND WATER CONNECTIONS TO FURNACE AND HEAT EXCHANGER IN TEST CELL, INCLUDING FURNISHING PIPING, VALVES, ORIFICES AND INSTRUMENTATION.

LEGEND

CU	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
A	AIR
G	GAS
H_e	HELIUM
H_2	HYDROGEN

NO.	DATE	REVISIONS	BY	CHKD	GRP.	D.O.	GRP. LDR.	ENG. D.O.

AUTHORIZED FOR
HEALTH N.A.
SAFETY
FIRE PROT.
SEC. N.A.

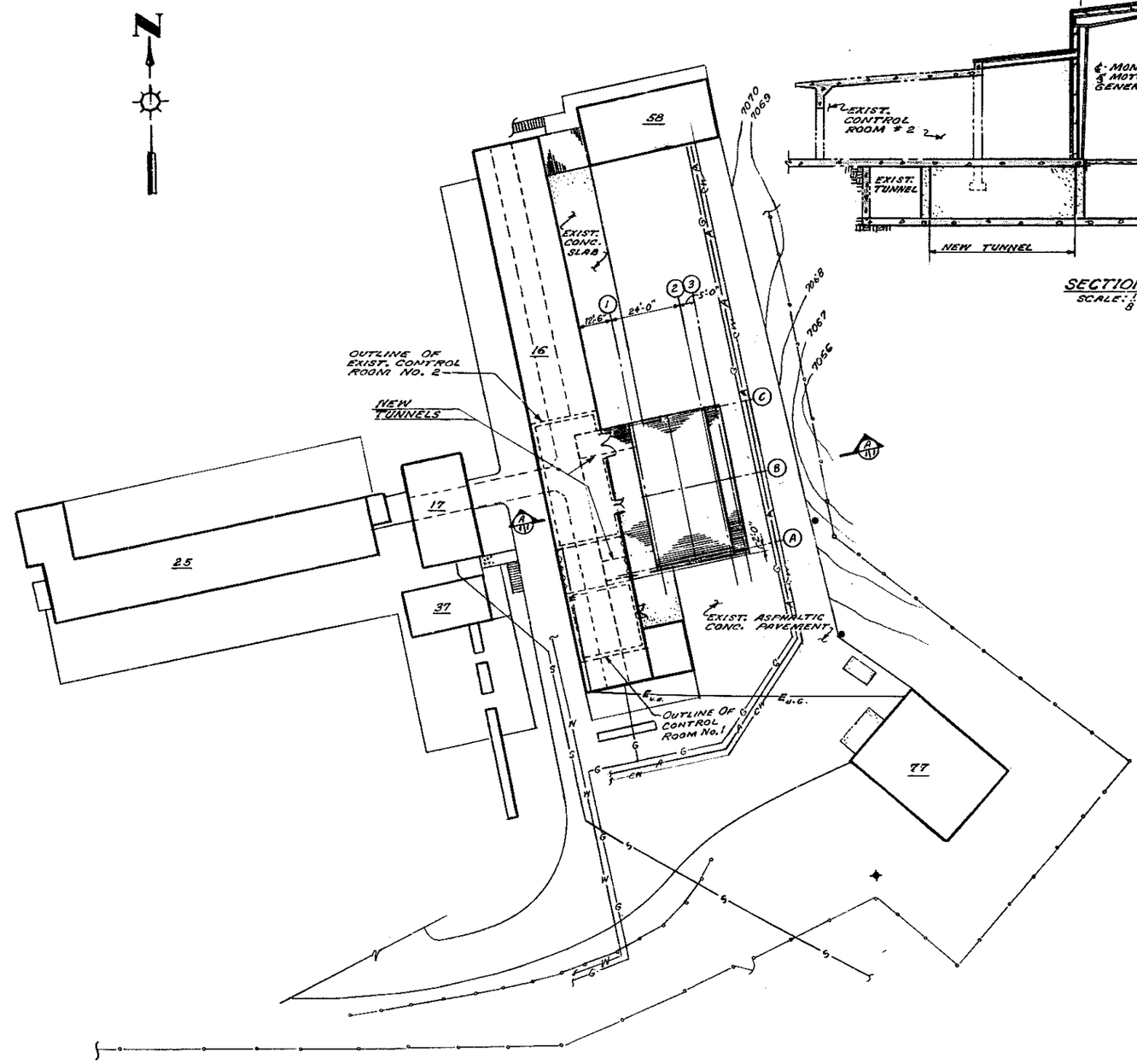
LOS ALAMOS SCIENTIFIC LABORATORY
ENGINEERING DEPARTMENT
UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

TEST CELL EXPANSION
CRITERIA

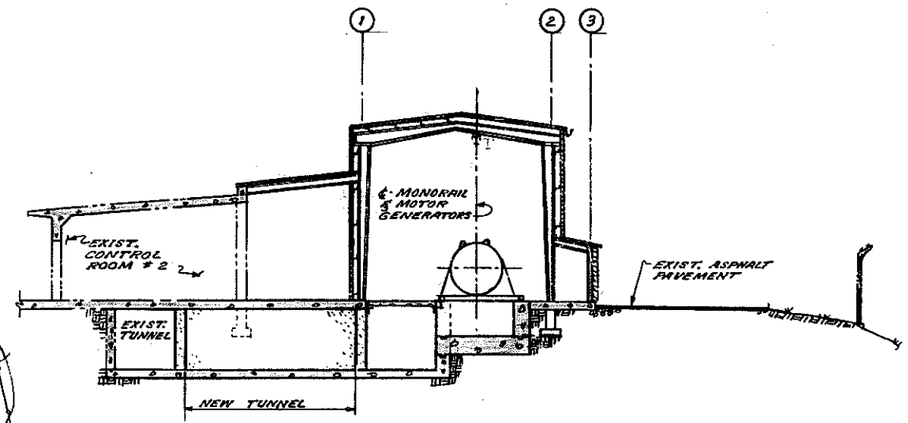
BLDG. WA-16 TA-46

CHECKED BY	RECOMMENDED GROUP LEADER	APPROVED ENG. DEPT. OFFICE
PROJ. ENG. JFZ		
DESIGNER DESILETS	DATE JAN. 31 1967	DRAWING NO. ENG-C 34955
DRAWN SS	SHEET 2 OF 3	
SCALE AS NOTED		
C.A. NO.	B. A. NO.	L. J. NO. 3585-46

PLOT PLAN IS LOCATION PLAN



PLOT PLAN
SCALE: 1" = 20'-0"
CONTOUR INTERVAL = 1'-0"



SECTION A/11
SCALE: 1/8" = 1'-0"

STRUCTURAL NOTES

1. ALL CONSTRUCTION ~~THROUGHOUT THIS PROJECT~~ SHALL CONFORM TO STANDARD A.E.C. CONSTRUCTION SPECS. FOR TECH. AREAS.
2. PATCH & REPAIR ALL AREAS THAT ARE DISTURBED DURING CONSTRUCTION TO MATCH EXISTING ADJACENT AREAS.
3. ALL CONCRETE THIS PROJECT SHALL TEST 3000 P.S.I. @ 28 DAYS.
4. TEST MONORAIL & HOIST PRIOR TO ACCEPTANCE IN ACCORDANCE WITH CURRENT SAFETY STANDARDS FOR LIFTING DEVICES.
5. LABEL MONORAIL IN ACCORDANCE WITH CURRENT STANDARD MARKING PROCEDURE TO CLEARLY INDICATE THE CAPACITY (10,000 LBS.) TO USER.
6. EXPANSION JOINT MATERIAL TO BE STRUCTURAL FIBERBOARD IMPREGNATED WITH ASPHALTIC COMPOUND. USE CORK EXPAN. FILLER AROUND BOTH M.G. FOUNDATIONS.
7. ALL SOIL BEARING AREAS TO BE COMPACTED TO 95% MAX. DENSITY @ OPTIMUM MOISTURE CONTENT.
8. STRUCT. STEEL FRAMING TO BE AISC TYPE A36 STEEL. WELDED CONN. TO BE W/ E70XX ELECTRODES & BOLTED CONN. TO BE A325 M.S. BOLTS, THREADS MAY BE INCLUDED IN THE SHEAR PLANES.
9. PROVIDE & INSTALL STRUCTURE NUMBER SIGNS IN ACCORDANCE WITH LASL STRUCTURE NUMBERING POLICY.
10. PAINT ALL STRUCTURAL STEEL WITH (2) COATS OF "TOTRUST" #31 GREY.
11. FIELD VERIFY DIMS. DO NOT SCALE PRINTS FOR DIM.
12. PAINT EXTERIOR TUNNEL WALLS BELOW GRADE WITH (1) COAT OF COAL TAR PITCH.

LEGEND

- EXIST. SECURITY FENCE.
- EXIST. POWER POLE.
- EXIST. LIGHT POLE
- E.U.G. — EXIST. UNDERGROUND ELEC. POWER LINE
- W — EXIST. WATER LINE.
- S — EXIST. SEWER LINE.
- G — EXIST. GAS LINE.
- CW — EXIST. COLD WATER LINE
- A — EXIST. 1" AIR LINE

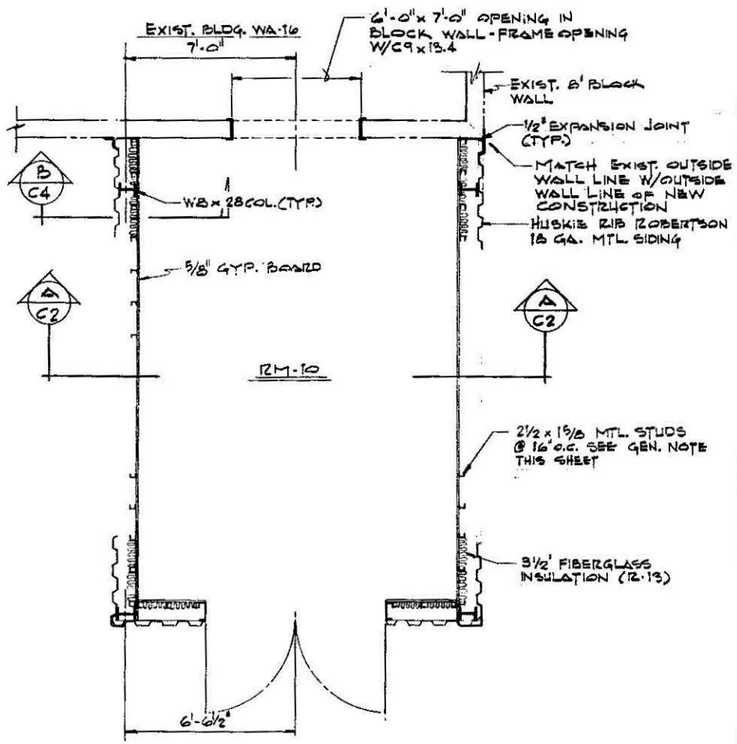
NO.	DATE	REVISIONS	BY	CHKD.	GRR	D.O.	GRR	CHKD.
1	11-24-48	ADDED NOTE No. 12 - ADDED SHT. 4	W.F.	J.F.			GRR	D.O.

THIS JOB MUST BE INSPECTED AND ANY CHANGES APPROVED BY ENG-4 PHONE

los alamos
scientific laboratory
engineering department
UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

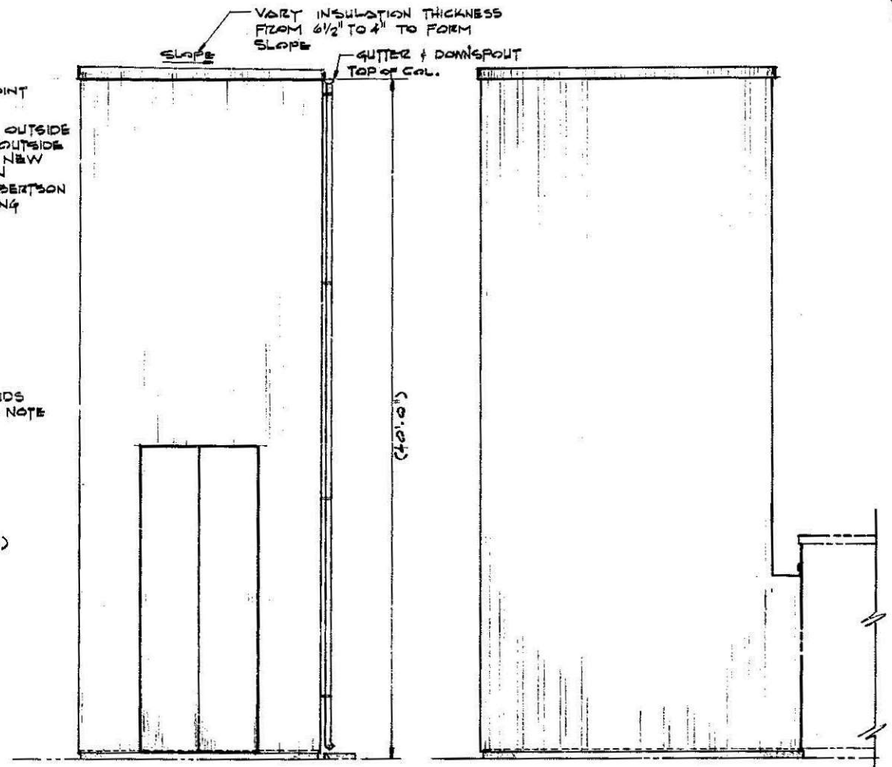
AUTHORIZED FOR		2.5 M.W.D.C. POWER SUPPLY PLOT PLAN			
SECURITY N.A					
SAFETY TEE					
HEALTH N.A					
FIRE PROT. TEE		BLDS. WA-16, WA-100 & WA-101 TA-46			
DIVISION N-DO	SUBMITTED	APPROVED	APPROVED		
GROUP N-7	PROJ. ENGR.	ENGR. GROUP LEADER	ENGR. DEPT. OFFICE		
	CHECKED SFZ	DATE 9-29-48	SHEET C-1	1 OF 5	
ENG.-5 N.A	DESIGNED SULLIVAN	LAS JOB NUMBER 9347-46	DRAWING NO. ENG-C-37035		
SCALE As NOTED	DRAWN SULLIVAN				

1 PHASE A



FLOOR PLAN

SCALE: 3/8" = 1'-0"

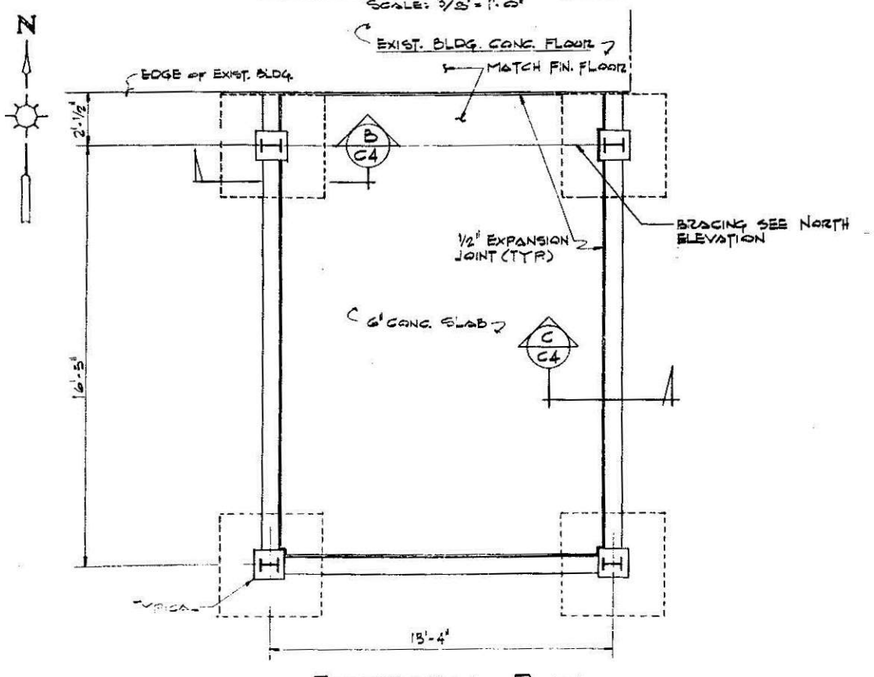


SOUTH ELEVATION

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

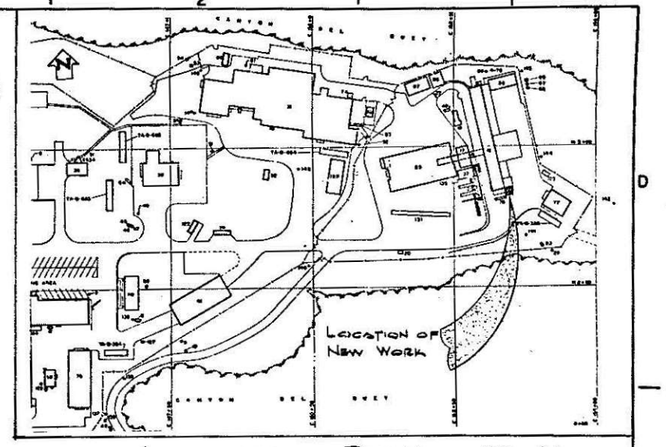
EAST ELEVATION

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



FOUNDATION PLAN

SCALE: 3/8" = 1'-0"



LOCATION PLAN TA-46

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION DIMENSIONS.
2. FIELD VERIFY DIMENSIONS PRIOR TO SHOP FABRICATION.
3. REPAIR ALL AREAS DAMAGED DURING CONSTRUCTION TO MATCH EXISTING ADJACENT AREAS.
4. KEEP WORK SITE IN AN ORDERLY CONDITION AND AT PROJECT COMPLETION REMOVE ALL WASTE. LEAVE WORK SITE IN A CONDITION ACCEPTABLE TO THE ENG-1 INSPECTOR.
5. DISPOSE OF ALL REMOVED MATERIAL AS DIRECTED BY ENG-1, UNLESS NOTED.
6. VERIFY UNDERGROUND UTILITY LOCATIONS BEFORE EXCAVATING.
7. ALL CONCRETE WORK SHALL BE PER ACI 301, =27.6 MP (4000 PSI), GRADE 60 REINF. SLABS SHALL HAVE A TROWELED, FINISH.
8. ALL REINFORCING SPLICES AND DOWELS IN FOUNDATION AND SLAB, SHALL BE 30 BAR DIAMETERS MIN. OR AS OTHERWISE NOTED.
9. COMPACT FILL MATERIAL IN 8" MAX LIFTS TO THE FOLLOWING PERCENTAGES OF MAX DENSITY.
   95% SUBGRADE FILL AND BACKFILL UNDER STRUCTURES AND PAVING.
   85% GENERAL AREA GRADING NOT INCLUDED ABOVE.
10. TEST (HOIST, TROLLEY, BRIDGE AND RAILS) PER ANSI B30.2. LABEL PER CURRENT ENG-4 STANDARDS TO CLEARLY INDICATE CAPACITY TO USER 20000 LBS.
11. ALL STRUCTURAL STEEL SHALL BE A36 UNLESS OTHERWISE NOTED ON THE DRAWINGS, AISC TYPE 2 FRAMING.
12. ALL BOLTED CONNECTIONS SHALL BE A325-N UNLESS NOTED.
13. ALL WELDING SHALL BE AWS D1.1, E70XX ELECTRODES.
14. ERECT STRUCTURAL STEEL PER AISC CODE OF STANDARD PRACTICE, SECTION 7.
15. PAINT STRUCTURAL STEEL PER AISC GUIDE TO THE SHOP PAINTING OF STRUCTURAL STEEL, PAINT WITH PPG. METAL PROTECTIVE PRIMER TWO COATS.
16. DESIGN LOADS

ROOF	DL	LL
STRUCTURE	4.4 PSF	
ROOFING	12.0	
MECHANICAL & ELECTRICAL	5.0	
SNOW		30.0 PSF
SEISMIC: UBC ZONE 2, I=(1.0)		
WIND: 30 PSF PER ANSI A58.1		
FLOOR:		600 P.S.F.
CATWALK:		60 P.S.F.

CONT'D

17. PROVIDE L 3 X 3 X 1/4 BRIDGE STOP AS REQ'D. BY MANUFACTURE.
18. METAL STUDS (WHEELING STEEL FRAMING) 250 CP 18 CEE STUD ALLOWABLE AXIAL LOAD FOR 10'-0" LENGTH, 2, 627 LBS.
19. PROVIDE FLOOR LOADING SIGNS PER UBC 2304, ALLOWABLE LIVE LOAD AS SHOWN ON SHEET C1.
20. FINAL COLOR SELECTION FOR EXTERIOR SIDING SHELL BE BY ENG-11.
21. DOOR SCHEDULE

    2 - 3'-4" X 18'-0" (DBL. DOOR) 14 GA. H.M. FLUSH DOOR, REINFORCED TO RECEIVE BUTTS AND MORTISED. PROVIDE SECURITY EYES. DOOR AND FRAME: UL OR FM LABEL "B" (1 1/2 HR.)

    DOOR HARDWARE:

    7 - PR. BUTTS ZIA STOCK NO. 2464 10 1045
    2 - DOOR STOP AND HOLDER FLOOR TYPE ZIA STOCK NO. 2802 25 0350
    2 - DOOR CLOSERS ZIA STOCK NO. 2285 17 0100 AND 2283 17 0200 EXIT DEVICE (BY AMERICAN DEVICE CO.) 1-RS NO. 54 AND 1-RS NO. 53 DEVICE WITH TOP AND BOTTOM STRIKES, HAND FINISH SCREWS, FOR 1 3/4" THICK X 18'-0" HIGH DOORS - 33/4" STILE REQUIRED.

STAHL 4142

NO	DATE	CLASS REVIEW	REVIEWER	REVISIONS	BY	CHKD	GRP	D.O	ENG OP	ENGR D.O.	APP.

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

CONTRACT NO. AT

DIVISION G-DO — ACCT NO.

GROUP G-13 — DRAWN M. Montoya

H-1 DRE 34618 — DRAFT CK A. Romero

H-3 34419 — DESIGN CK S. W. T.

H-3 N/A — A.E. APPROVED

H-5 34420 — DESIGN M. CHAVEZ

H-7 N/A — CHECKED R. T. Hurst

H-7 N/A — RELEASED E. T. Hurst

H-8 N/A — DATE 7/13/75

E-1 34416

ENG-1 34407

ENG-4 34413

ENG-11 34414

CNG-2 34412

TEST CELL #1 MOD's

CIVIL: PLANS & ELEVATIONS

BLDG. WA-16 TA-46

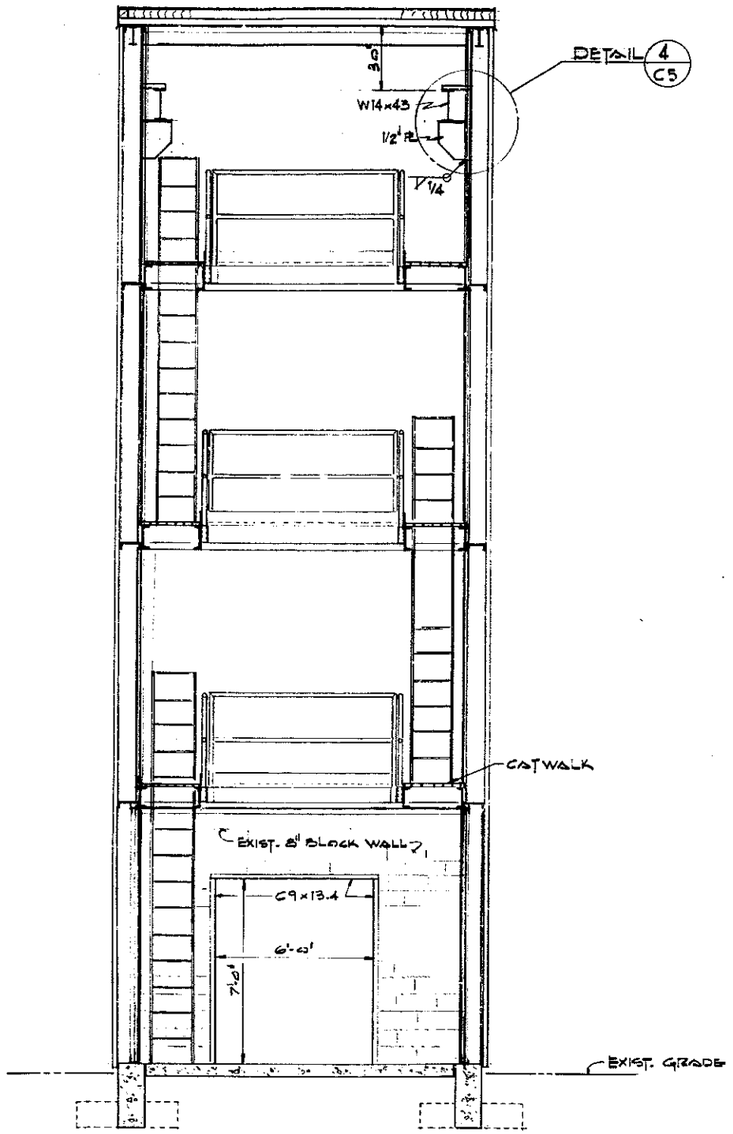
SUBMITTED	RECOMMENDED	APPROVED
R. E. Hurst	W. T. Richard	E. J. Campos 7/16/75

LOS ALAMOS SCIENTIFIC LABORATORY, UNIVERSITY OF CALIFORNIA, ENGINEERING DEPT. LOS ALAMOS, N.M.

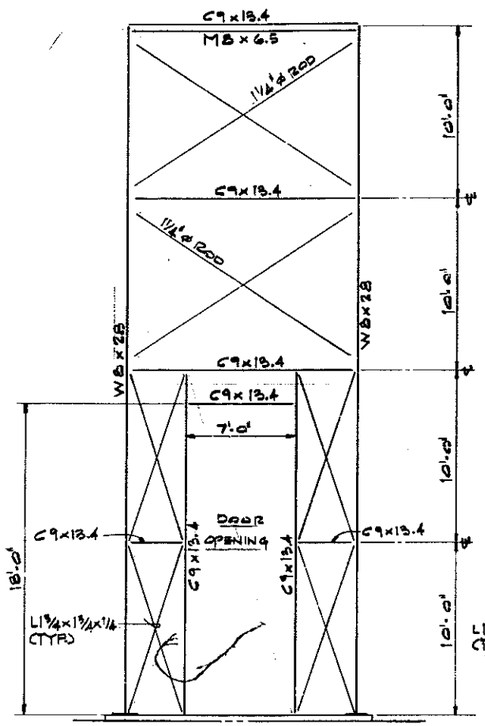
DRAWING NO. — SHEET 61 — OF 2/10

CLASSIFICATION U — REVIEWER W. T. Richard DATE 5-26-75

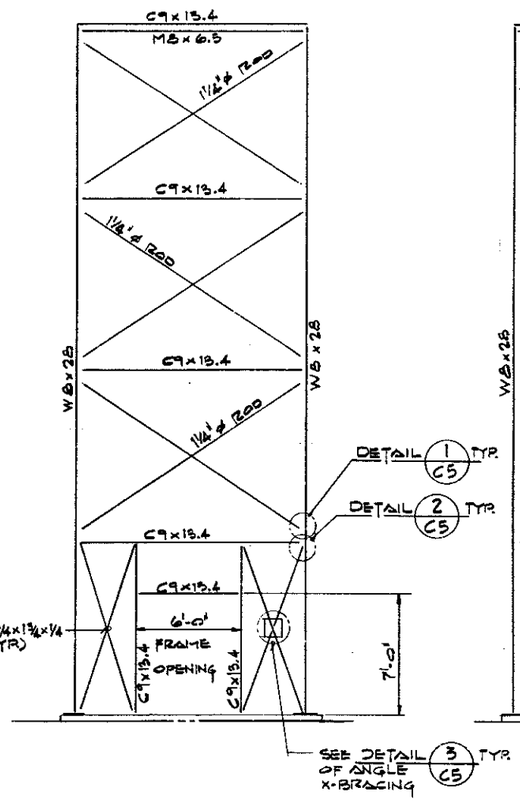
LAB JOB NO 5808-46 — LASL DWG. NO. ENG-C43461



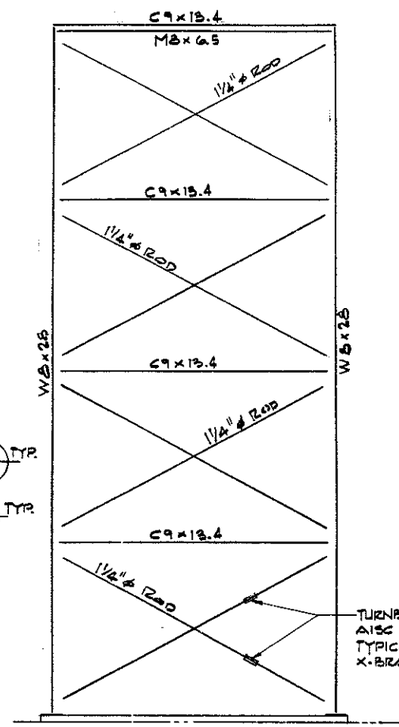
SECTION A C1
SCALE: 3/8" = 1'-0"



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



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



EAST OR WEST ELEVATION
SCALE: 1/4" = 1'-0"

STAHL [illegible] 4142

NO	DATE	CLASS REVIEW	REVIEWER	REVISIONS	BY	CHKD	GRP	D.O	ENG SP	ENGR D.O.	APP.

AUTHORIZED FOR
DIVISION G-DO
GROUP G-13
H-1 DDR 34418
H-3 34419
H-3 N/A
H-5 34420
H-7 N/A
H-7 N/A
H-8 N/A
E-1 34416
ENG-1 34407
ENG-4 34413
ENG-11 34414
L.P. ENG-2 34412

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

CONTRACT NO. AT
ACCT. NO.
DRAWN T. MONTOYA
DRAFT CK
DESIGN CK

TEST CELL #1 MOD's

CIVIL: SECTION & ELEVATIONS

A.E. APPROVED
DESIGN M. CHAVEZ
CHECKED
RELEASED
DATE 7/1/75

BLDG. WA-16 TA-48

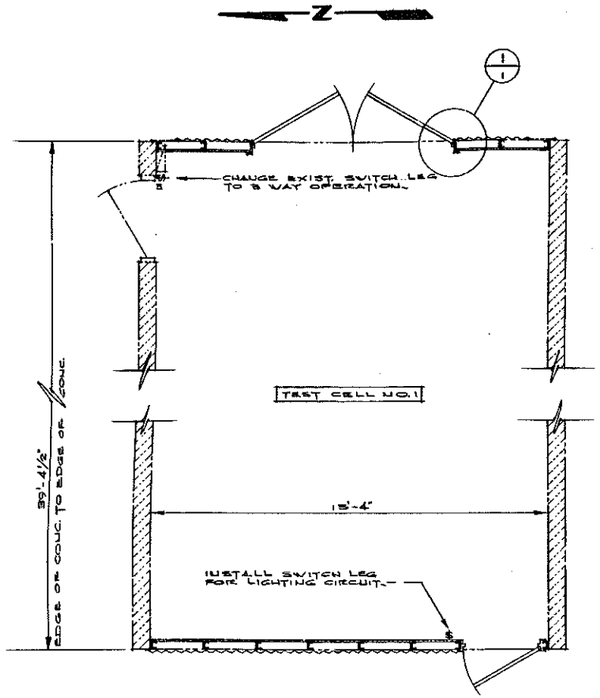
SUBMITTED
RECOMMENDED
APPROVED 7/14/75

LOS ALAMOS SCIENTIFIC LABORATORY
UNIVERSITY OF CALIFORNIA
ENGINEERING DEPT. LOS ALAMOS, N.M.

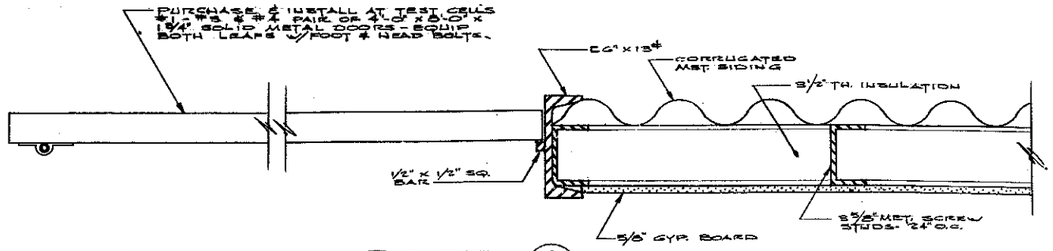
DRAWING NO.
SHEET C2 OF 3/10

CLASSIFICATION
REVIEWER W. T. Thurman DATE 5-26-75

LAB JOB NO. 5808-46
LASL DWG. NO. ENG-C43461



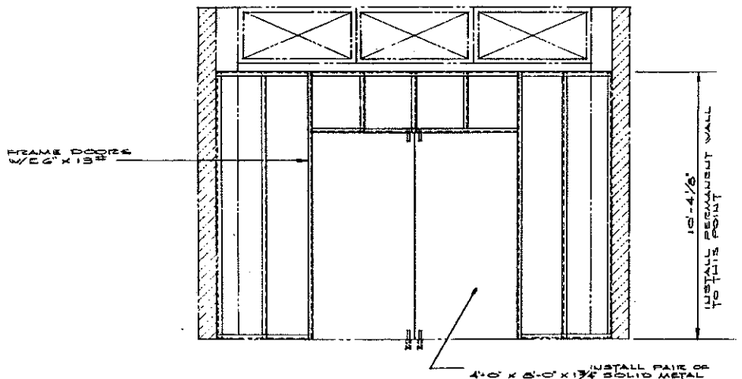
FLOOR PLAN
SCALE: 3/8" = 1'-0"



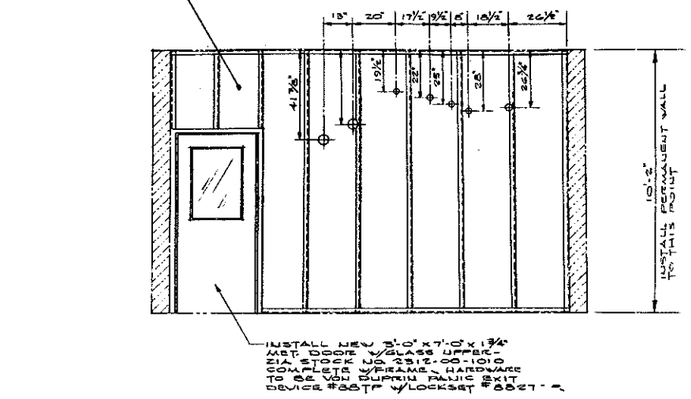
TYP. DETAIL AT DOOR 1/1
SCALE: 3"=1'-0"

ITEM	DESCRIPTION
1	3⅝" MET. SCREW STUDS ZIA STOCK NO. 2315-35-0010 (10') ZIA STOCK NO. 2315-35-0012 (12')
2	3⅝" FLOOR & CEILING TRACK ZIA STOCK NO. 2313-10-0350
3	CORRUGATED MET. SIDING ZIA STOCK NO. 2699-10-0029 (10') ZIA STOCK NO. 2699-10-0034 (12')
4	5/8" GYPSUM BOARD ZIA STOCK NO. 2914-32-0350 (8') ZIA STOCK NO. 2914-32-1058 (10')
5	3½" TH BATT INSULATION ZIA STOCK NO. 2490-32-2224 (24" W)
6	PANIC EXIT DEVICE W/LOCKSET ZIA STOCK NO. 2315-55-0150
7	3'-0" x 7'-0" x 1¾" MET. DOOR W/GLASS UPPER COMPLETE W/FRAME & JAMB
8	EQ" x 13# ZIA STOCK NO. 2791-34-0106

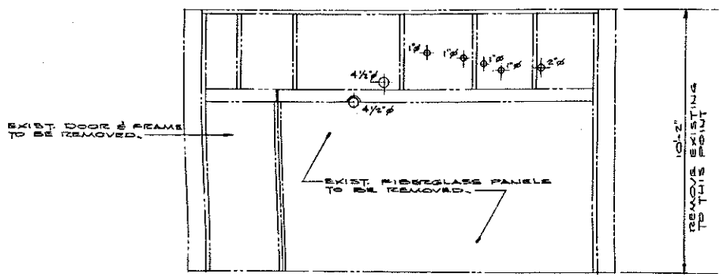
NOTE:
LIST OF MATERIAL TYPICAL FOR TEST CELL #1 - #3 & #4.



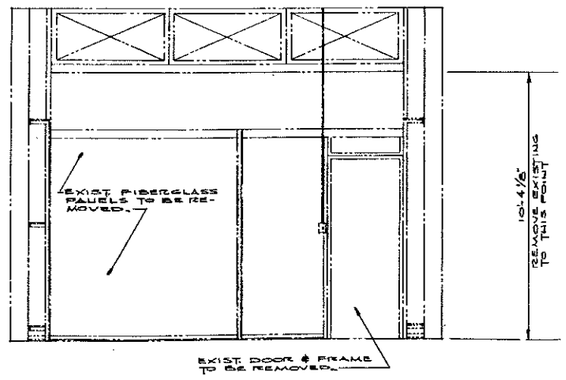
EAST ELEVATION
SCALE: 3/8"=1'-0"



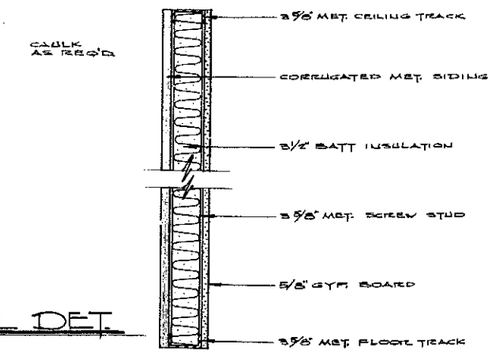
WEST ELEVATION
SCALE: 3/8"=1'-0"



WEST ELEVATION (EXIST.)
SCALE: 3/8" = 1'-0"



EAST ELEVATION (EXIST.)
SCALE: 3/8" = 1'-0"



TYP. WALL DET.
SCALE: 1½" = 1'-0"

GENERAL NOTES
1. PAINT INTERIOR WALLS CODE # 2.
2. WILL REQUIRE RELOCATION OF SMALL RUNS OF CONDUIT AND PLUMBING TO CLEAR WALL AREAS.

TEST CELL NO. 1

MF

PRELIMINARY INSPECTION
FIELD CHECKED BY
MATERIAL LIST BY
ESTIMATE BY
REVISED BY

THE ZIA COMPANY
DETAILING DEPARTMENT
ZIA TECH AREA DIVISION — LOS ALAMOS, NEW MEXICO

INSTALL PERMANENT WALLS
FLOOR PLAN - ELEV'S. - DETAILS

BLDG. NO. 16 — TA. NO. 46

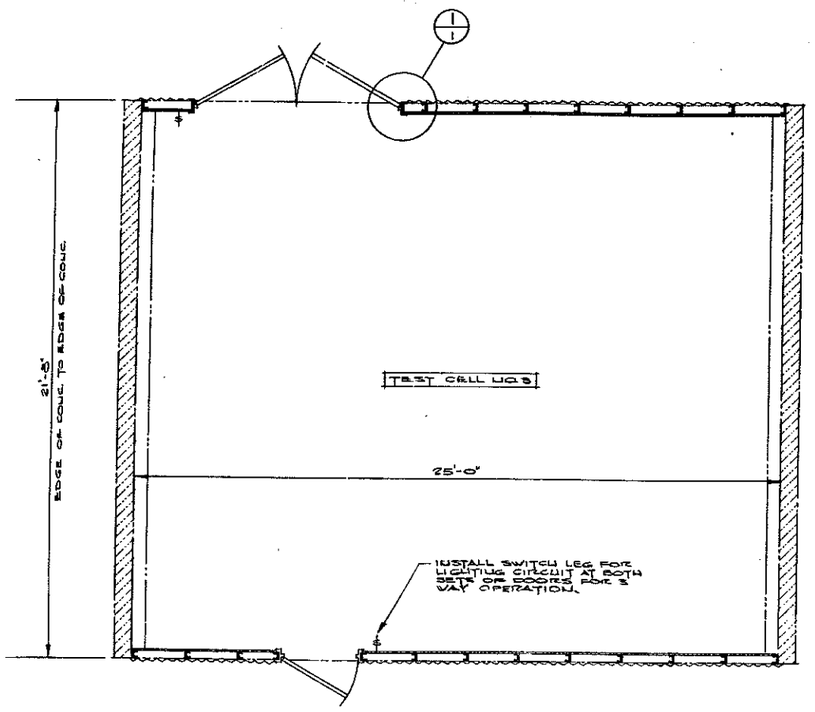
CHECKED		APPROVED	DATE REQUIRED
CHECKED			
DRAWN LAVIGNE		DATE SEPT. 1978	DRAWING NO. ZIA
SCALE AS SHOWN		SHEET 1 OF 3 SHEETS	ZT-4548
FABRICATION	SJV 10/2/1978	REF. W.O. NO. 9094-99	L. J. NO.

REC'D 1 — VAULT

ENG-C 47032

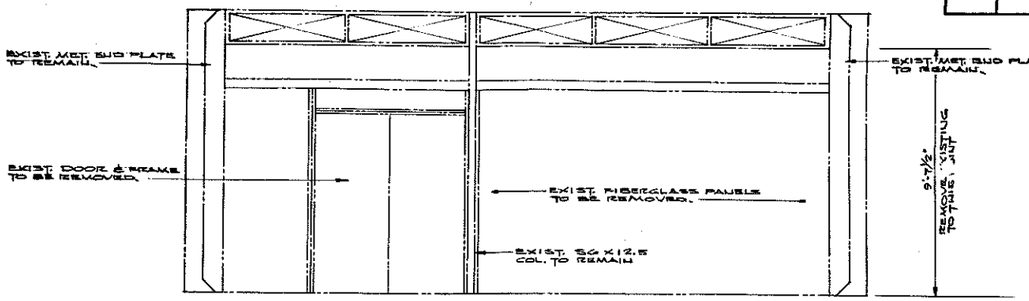
K+E

BILL OF MATERIAL			
ITEM	QUANTITY	DESCRIPTION	FURNISHED BY



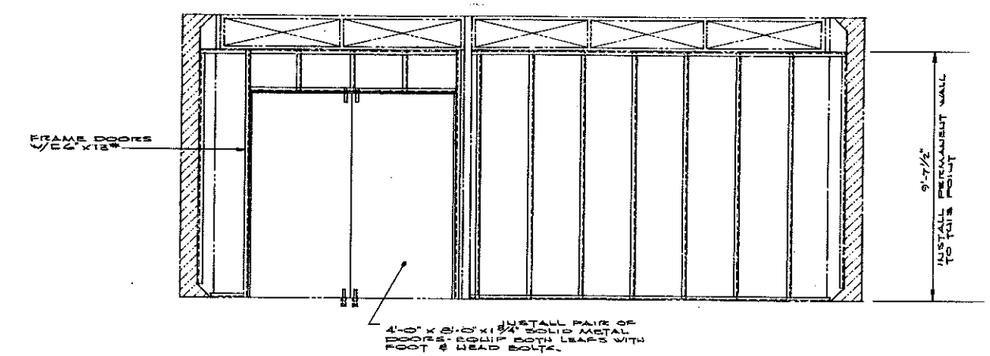
FLOOR PLAN

SCALE: 3/8" = 1'-0"



EAST ELEVATION (EXIST.)

SCALE: 3/8"=1'-0"

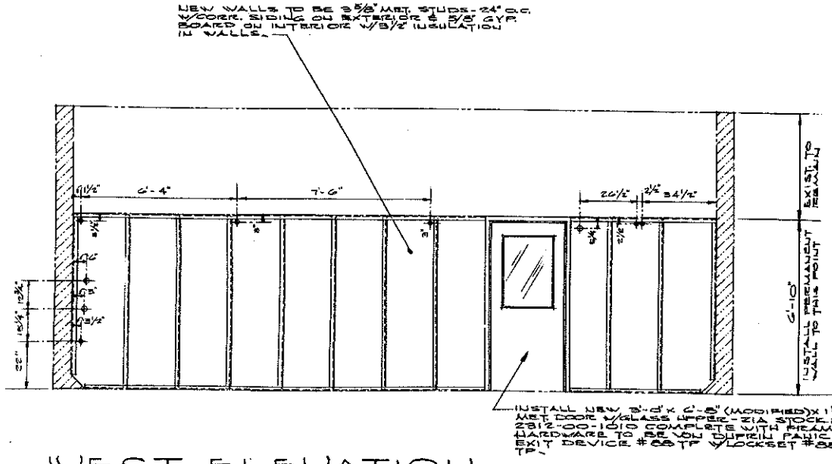


GENERAL NOTES

1. PAINT INTERIOR WALLS CODE # 2.
2. WILL REQUIRE RELOCATION OF SMALL RUNS OF CONDUIT & PLUMBING TO CLEAR WALL AREAS.

EAST ELEVATION

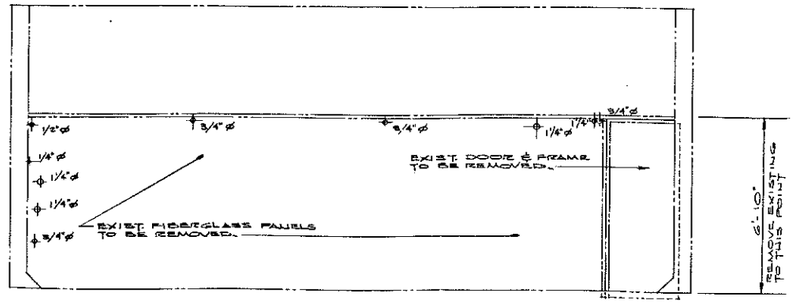
SCALE: 3/8"=1'-0"



WEST ELEVATION

SCALE: 3/8"=1'-0"

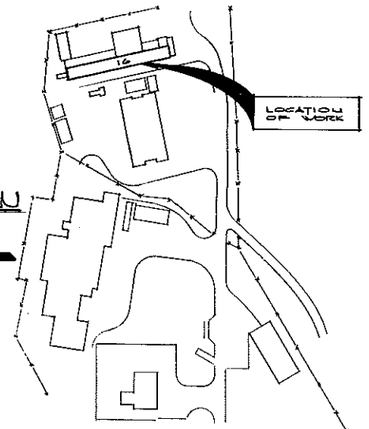
NOTE:
EXIST EQUIPMENT AT WEST WALL TO BE MOVED OUT OF THE WAY DURING CONSTRUCTION & THEN REPLACED AFTER PERMANENT WALLS HAVE BEEN INSTALLED.



WEST ELEVATION (EXIST.)

SCALE: 3/8"=1'-0"

LOCATION PLAN



TEST CELL NO. 3

PRELIMINARY INSPECTION
FIELD CHECKED BY
MATERIAL LIST BY
ESTIMATE BY
REVISED BY

THE ZIA COMPANY
DETAILING DEPARTMENT
ZIA TECH AREA DIVISION — LOS ALAMOS, NEW MEXICO

INSTALL PERMANENT WALLS
FLOOR PLAN-ELEVATIONS

BLDG. NO. 16 — TA. NO. 46

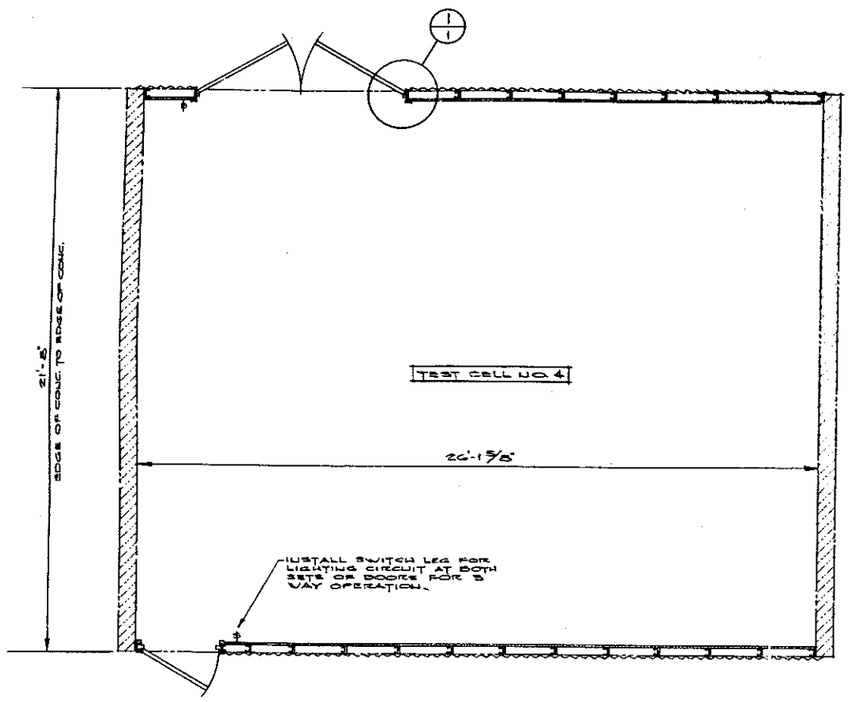
CHECKED	APPROVED	DATE REQUIRED
CHECKED	DATE SEPT. 1978	DRAWING NO. ZIA
DRAWN LAVIGNE	SHEET 2 OF 3 SHEETS	ZT-454B
SCALE AS SHOWN	REF. W.O. NO. 9094-19	L.J. NO.
FABRICATION		

K&E ESTABLISHED LA 3408

REC'D 1

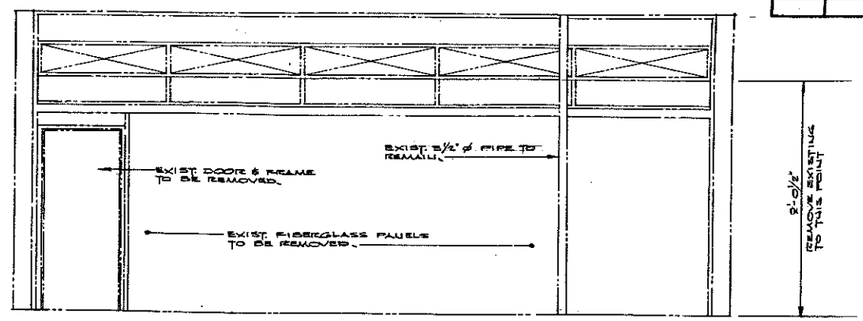
ENG-C 47632

BILL OF MATERIAL			
ITEM	QUANTITY	DESCRIPTION	FURNISHED BY



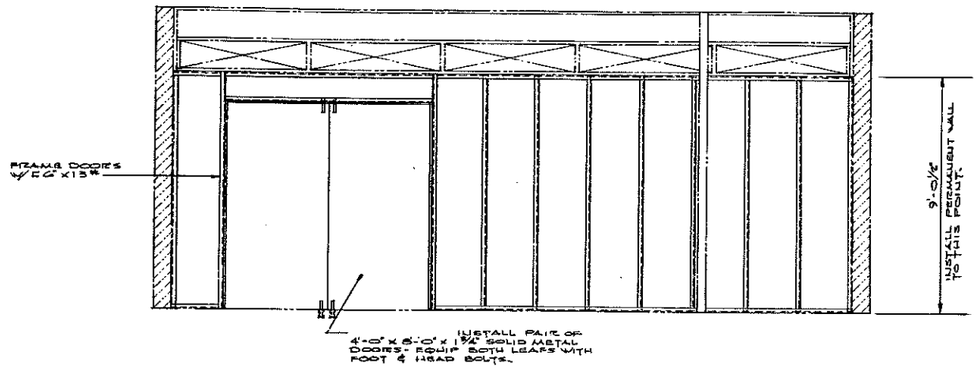
FLOOR PLAN

SCALE: 3/8"=1'-0"



EAST ELEVATION (EXIST.)

SCALE: 3/8"=1'-0"

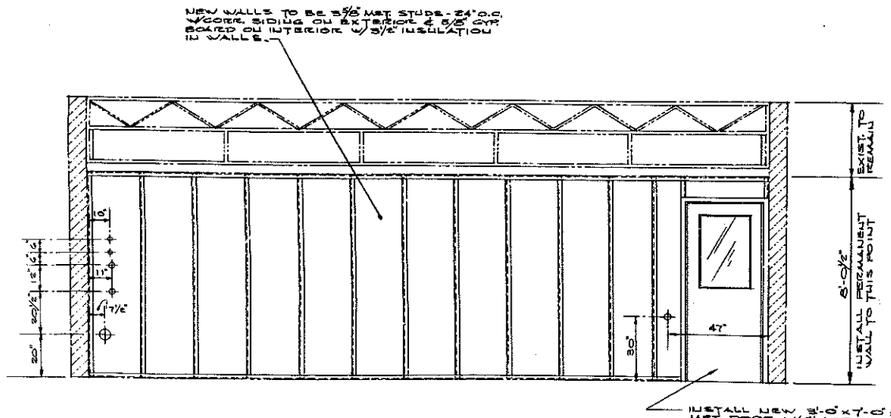


EAST ELEVATION

SCALE: 3/8"=1'-0"

GENERAL NOTES

1. PAINT INTERIOR WALLS CODE # 2.
2. WILL REQUIRE RELOCATION OF SMALL RUNS OF CONDUIT AND PLUMBING TO CLEAR WALL AREAS.

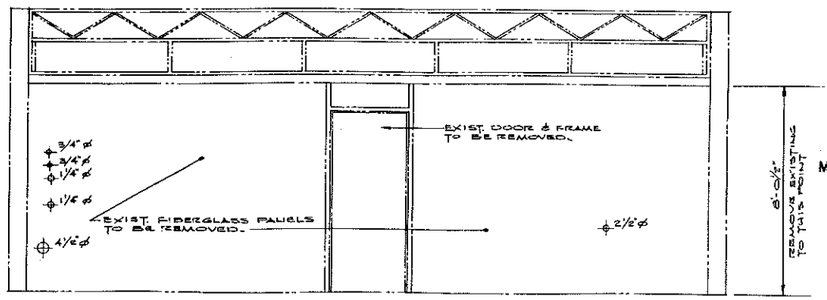


WEST ELEVATION

SCALE: 3/8"=1'-0"

NOTE

EXIST. EQUIPMENT AT WEST WALL TO BE MOVED OUT OF THE WAY DURING CONSTRUCTION & THEN REPLACED AFTER PERMANENT WALLS HAVE BEEN INSTALLED.



WEST ELEVATION (EXIST.)

SCALE: 3/8"=1'-0"

MF

PRELIMINARY INSPECTION
FIELD CHECKED BY
MATERIAL LIST BY
ESTIMATE BY
REVIEWED BY

TEST CELL NO. 4

THE ZIA COMPANY

DETAILING DEPARTMENT

ZIA TECH AREA DIVISION — LOS ALAMOS, NEW MEXICO

INSTALL PERMANENT WALLS

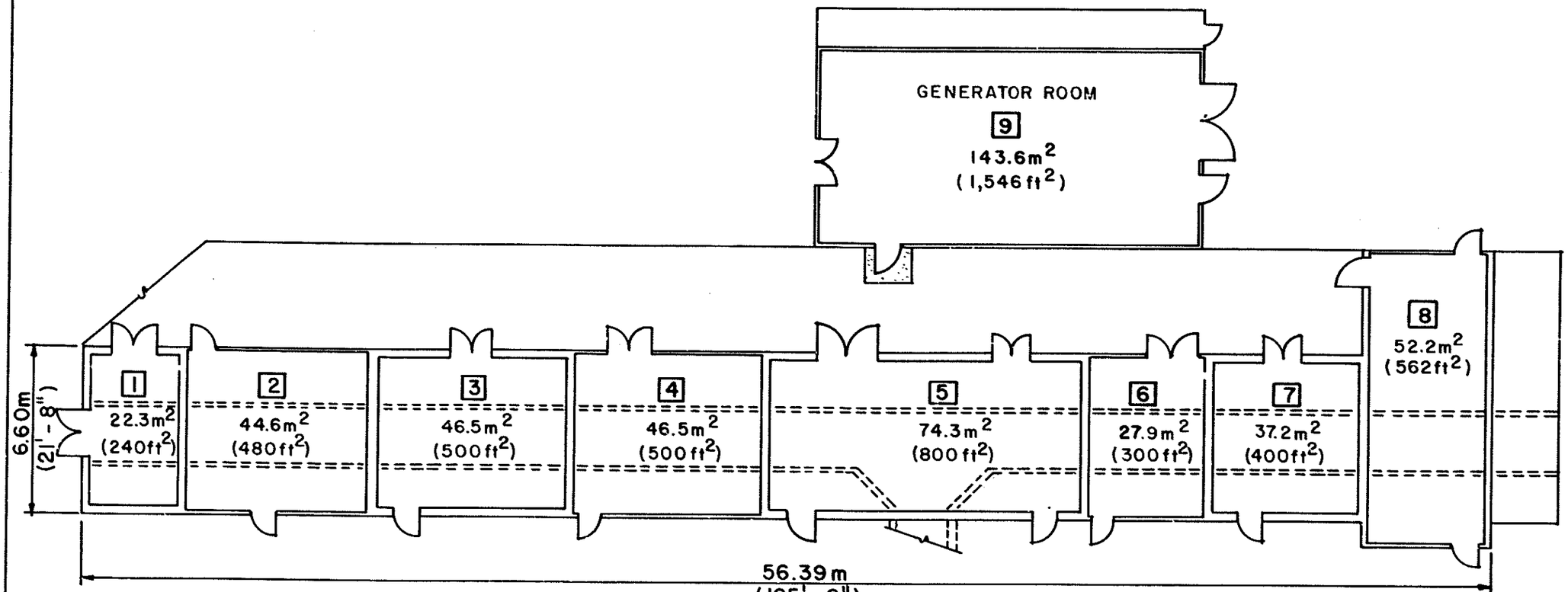
FLOOR PLAN-ELEVATIONS

BLDG. NO. 16 — TA. NO. 46

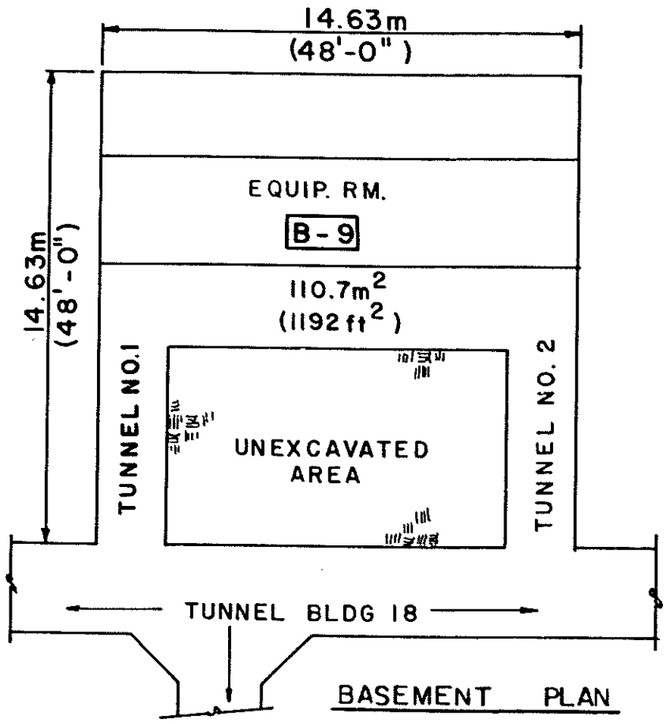
CHECKED	APPROVED	DATE REQUIRED
CHECKED		
DRAWN LAVIGUE	DATE SEPT. 1978	DRAWING NO. ZIA
SCALE AS SHOWN	SHEET 3 OF 3 SHEETS	ZT-4548
FABRICATION	REF. W.O. NO. 9094-99	L.J. NO.

ENG-C 47632

K&E LA 2406



FIRST FLOOR PLAN



BASEMENT PLAN

1.5mm = .30m
1/16" = 1'-0"

0m 2m 4m 6m
0 5 10 20
GRAPHIC SCALE

TOTALS	m²	ft²
	605.72	(6520)

REV.	DATE	REVISION	BY	CKD.	APP.
8	2-6-84	REVISED TO STATUS OF 2-6-84	H&N		
7	7-19-83	REDRAWN & REVISED TO STATUS OF 7-19-83	H&N		

MF

UNIVERSITY OF CALIFORNIA
Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

TEST BUILDING NO. 1
BASEMENT & FIRST FLOOR PLAN

BLDG. WA-16 TA-46

SEC. CLASSIFICATION
CLASS. U
REVIEWER Mabud
DATE 3684

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	D. Rupp	W. T. Grant

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
H&N	HUMBLE H&N	7-19-83	1 OF 1	ENG-R3163

3/30/84

ROOM INFORMATION CHART					
RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE
B4	120	B6	239	B8	113
B5	1246	B7	114	B9	880

TOTAL ROOM NET SQUARE FOOTAGE (THIS SHEET) = 2,712

GROSS SQUARE FOOTAGE (THIS SHEET) = 3,352

TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 7,318

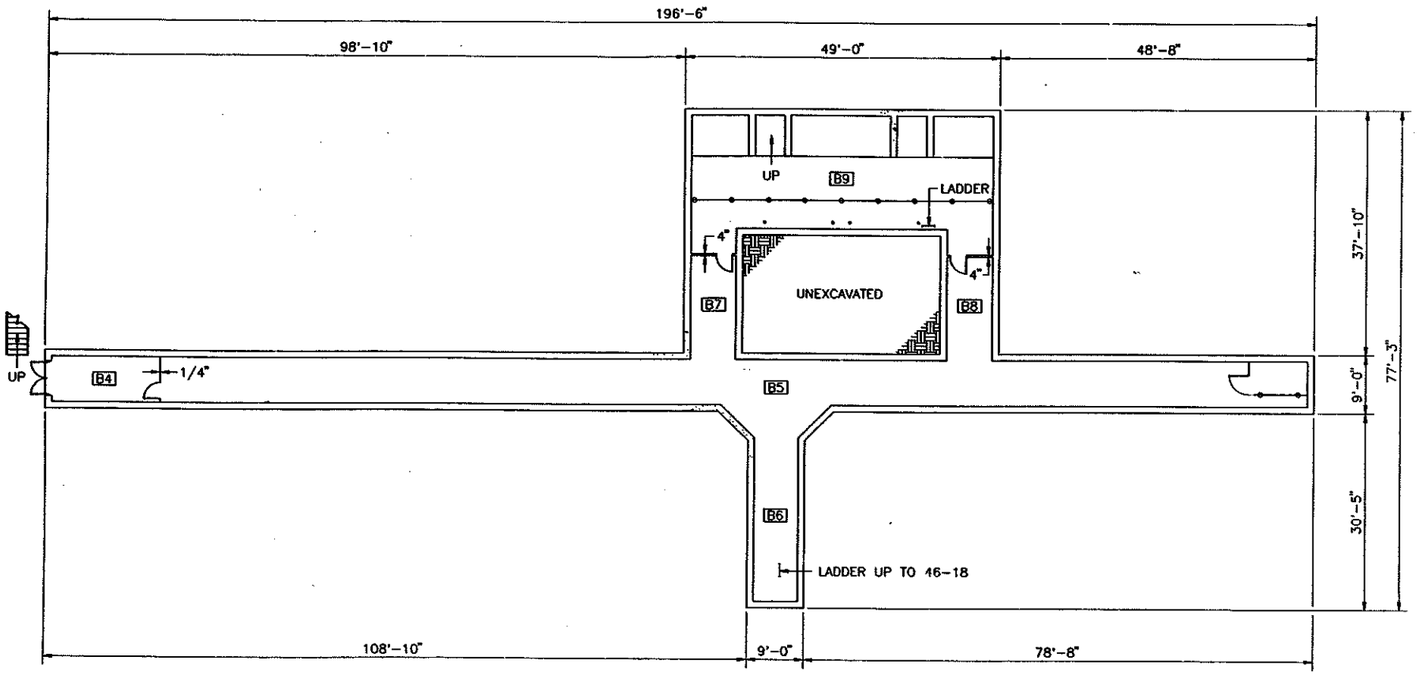
GROSS SQUARE FOOTAGE (BUILDING) = 7,975

LEGEND

CONCRETE
WOOD OR METAL STUD
CHAIN LINK FENCE
COLUMNS

NOTES

1. ALL EXTERIOR WALLS ARE 12" THICK UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 12" THICK UNLESS OTHERWISE NOTED.
3. REFERENCE DRAWING ENG-R3163.
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, VAULTS, AND ENCLOSED PASSAGES.
6. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.



BASEMENT FLOOR PLAN

SCALE: 3/32" = 1'-0"

12 9 6 3 0 12 24 48
GRAPHIC SCALE

N

REC'D ____ LOGGED ✓ TO VAULT 9/4/96
FIELD VERIFIED 3-27-95

MF	NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	REL	SUB	REC	APP

JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT RECORD FLOOR PLAN
TEST BUILDING NO. 1
ARCH: BASEMENT FLOOR PLAN

DRAWN D. TIDEMAN
VERIFIED DWT/CJW/PS
CHECKED RR/MB
RELEASED C. SANDOVAL
DATE 5-3-95

BLDG 16 TA-46

SUBMITTED JERRY FORTE 9/4/96
RECOMMENDED FRED THOMPSON 3/19/95
APPROVED FRED THOMPSON 3/19/96

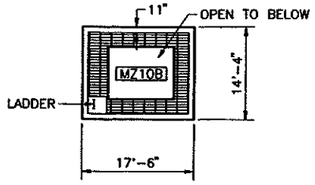
Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

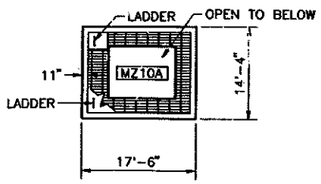
SHEET 1 OF 2

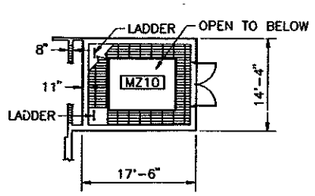
CLASSIFICATION U REVIEWER T. GUSDORF DATE 7-17-95

PROJECT ID	DRAWING NO	REV
7556	AB359	

ENG-R3163-110-1

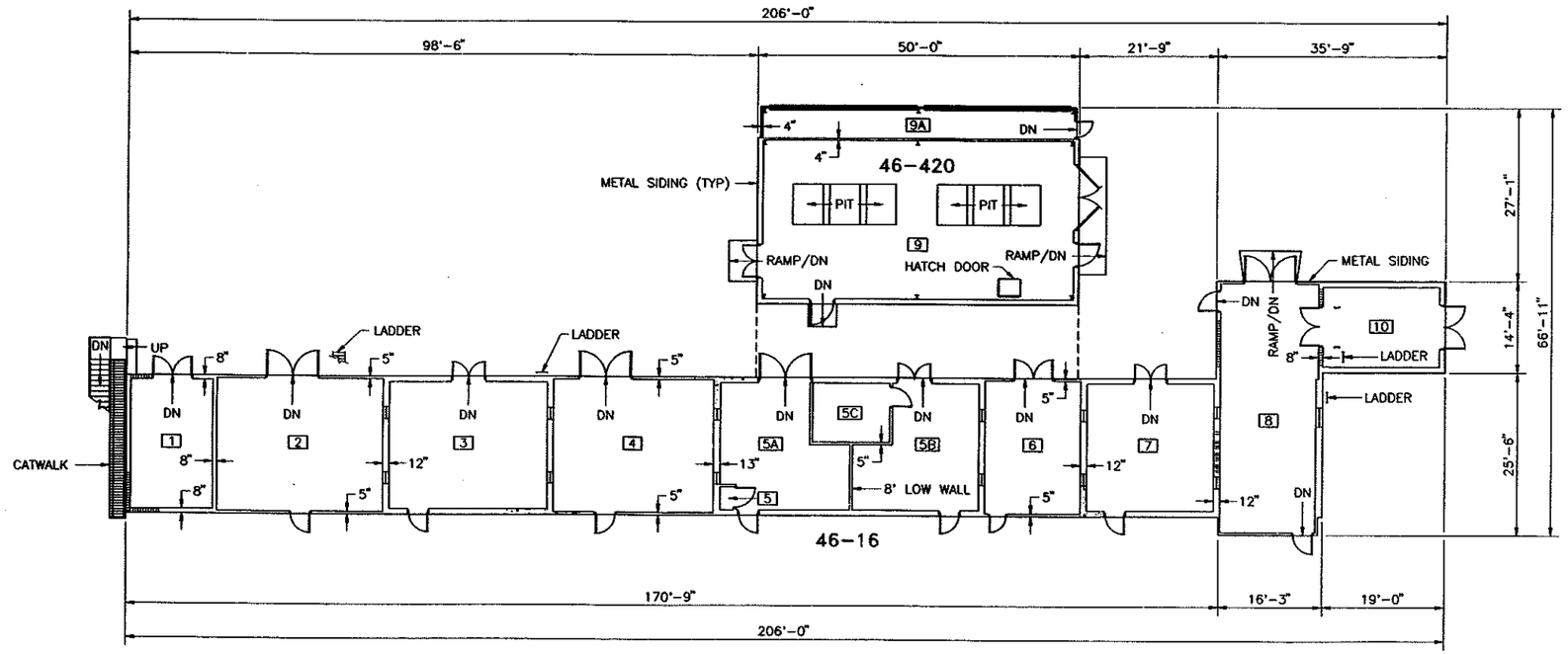






MEZZANINES ABOVE ROOM 10

SCALE: 3/32" = 1'-0"



FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

12 9 6 3 0 12 24 48
GRAPHIC SCALE

N

FIELD VERIFIED 3-27-95

ROOM INFORMATION CHART

BUILDING	RM NO	NET SQ FOOTAGE	BUILDING	RM NO	NET SQ FOOTAGE
16	1	265	16	7	418
16	2	559	16	8	604
16	3	513	16	10	231
16	4	543	16	MZ10	107
16	5	11	16	MZ10A	108
16	5A	345	16	MZ10B	107
16	5B	345	420	9	1028
16	5C	118	420	9A	236
16	6	332			

TOTAL ROOM NET SQUARE FOOTAGE (THIS SHEET) = 5,870

GROSS SQUARE FOOTAGE (THIS SHEET) = 6,489

TA 46-16 TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 7,318

TA 46-16 GROSS SQUARE FOOTAGE (BUILDING) = 7,975

TA 46-420 TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 1,264

TA 46-420 GROSS SQUARE FOOTAGE (BUILDING) = 1,544

LEGEND

CONCRETE
CONCRETE BLOCK
LOUVER
WINDOW
WOOD OR METAL STUD
CHAIN LINK FENCE
I COLUMNS

NOTES

1. ALL EXTERIOR WALLS ARE 10" THICK UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 11" THICK UNLESS OTHERWISE NOTED.
3. REFERENCE DRAWING ENG-R3163.
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, VAULTS, AND ENCLOSED PASSAGES.
6. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.

MF	NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	REL	SUB	REC	APP

JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT RECORD FLOOR PLAN
TEST BUILDING NO. 1
ARCH: FIRST FLOOR PLAN

DRAWN: D. TIDEMAN
VERIFIED: DWT/CM/PS
CHECKED: RR/YTB
RELEASED: C. SANDOVAL
DATE: 5-3-95

BLDG 16 & 420 TA-46

SUBMITTED: JERRY FORTE
RECOMMENDED: FRED THOMPSON 7/19/95
APPROVED: FRED THOMPSON 7/19/95

Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET 2 OF 2

CLASSIFICATION U REVIEWER T. GUSDORF DATE 7-18-95

PROJECT ID 7556

DRAWING NO AB359

REV

REC'D ___ LOGGED ___ TO VAULT 7/26

JCI NO 91-011

LANL TA- Building # 46-0058

Camera 984231

Frame #s P0002963 through P0002965

Surveyor(s) S. McCarthy, J. Ronquillo, N. Naranjo

Date 5/25/2006

Los Alamos National Laboratory
RMT Historic Building Survey Form

Building Name Laboratory and Shop Building UTMs easting 384518 northing 3968560 zone 13

Legal Description: Map USGS Friioles Ouad 2002 tnsp 19N range 6E sec

Current Use/ Function Laboratory and Shop Building Original Use/ Function Laboratory and Shop Building

Date (estimated) Date (actual) 1962 Property Type Laboratory/Processing

Type of Construction

Pre-Fabricated Metal ☐ Steel Frame ☐ Wood Frame ☐ CMU ☑ Reinforced Concrete ☐

Other Type of Construction # of Stories 1

Foundation Reinforced Concrete

Exterior CMU-Exterior ☑ Reinforced Concrete-Exterior ☐ Steel (galvanized) ☐ Steel (corrugated) ☐

Wood Siding ☐ Asbestos Shingles-Exterior ☐ In-Fill Panels ☐ Other-Exterior

Exterior Treatment (painted, stuccoed, etc) Painted

Exterior Features (docks, speakers, lights, signs, etc) Exterior features include signage, lights, lightning rods and vent stacks on the roof.

Addition CMU-Addition ☐ Reinforced Concrete-Addition ☐ Steel (galvanized)- Addition ☐ Wood ☐

Steel (corrugated)-Addition ☐ Asbestos Shingles-Addition ☐ Other- Addition

Exterior Treatment-Addition

Exterior Features-Addition

Roof Form Slanted/Shed ☐ Gable ☐ Other Roof Type flat

Degree of Pitch/ Slope Slight

Roof Materials Corrugated Metal ☐ Rolled Asphalt ☐ Asbestos Shingles ☐ 4-Ply Built Up ☐

Other Roof Materials Flat roof with steel joists, built-up roof system and gravel stop.

Window Type Casement ☐ Single Hung Sash ☐ Double Hung Sash ☐ Fixed Window ☐

Other Window Type

# of Each Window Type/ Comments Single 3-light awning type on south side and four 2-light hopper units on north side.

Glass Type Clear ☑ Wire Glass ☑ Opaque ☐ Painted Glass ☐ Glass Block ☐

Light Pattern Single 3-light window on south side and four 2-light window on north side.

Door Type Personnel Door Types Exterior Fire Door ☐ Single ☑ Double ☐ Roll-up ☐ Sliding ☐
Hollow Metal ☑ Solid Wood ☐ 1/2 Glazed ☑ Paneled ☐
Louvered ☐ Painted ☑

Interior Fire Door ☐ Single ☐ Double ☐ Roll-up ☐ Sliding ☐
Hollow Metal ☐ Solid Wood ☐ 1/2 Glazed ☐ Paneled ☐
Louvered ☐ Painted ☐

Equipment Door Types Exterior Fire Door ☐ Single ☐ Double ☑ Roll-up ☐ Sliding ☐
Hollow Metal ☑ Solid Wood ☐ 1/2 Glazed ☐ Paneled ☐
Louvered ☑ Painted ☑

Interior Fire Door ☐ Single ☐ Double ☐ Roll-up ☐ Sliding ☐
Hollow Metal ☐ Solid Metal ☐ 1/2 Glazed ☐ Paneled ☐
Louvered ☐ Painted ☐

# of Each Door Type/Comments: Two single painted hollow-metal doors: one on the south and one on the west; a pair of painted hollow-metal doors on south side near the east end.

Interior Wall Gypsum Board ☐ Reinforced Concrete- Interior ☐

CMU- Interior ☐ Plywood ☐ Other- Interior

In-Wall Electrical Wiring ☐ On-Wall Electrical Wiring ☐

Ceiling Drop Ceiling ☐

Interior Comments (Equipment, etc)

Degree of Remodeling Minor

Condition Excellent ☐ Good ☑ Fair ☐ Deteriorating ☐ Contaminated ☐ Burned ☐

Associated Buildings ☑

If yes, list building names and #s TA-46-16

Integrity Excellent

Significance Of Interest (associated with LANL/DOE themes)

Eligible Under Criterion A ☐ B ☐ C ☐ D ☐ Not Eligible ☑

DOE Themes

Nuclear Weapon Components and Assembly ☐
Nuclear Weapon Design and Testing ☐
Nuclear Propulsion ☑
Peaceful Uses: Plowshare, Nuclear Medicine, Nuclear Energy, Nuclear Science ☑
Energy and Environment: Research and Design Projects ☑

LANL Themes

Weapons Research and Design, Testing, and Stockpile Support ☐ Super Computing ☐

Reactor Technology ☑ Biomedical/Health Physics ☐ Strategic and Supporting Research ☑

Environment/Waste Management ☐ Administration and Social History ☐ Architectural History ☐

Recommendations/ Additional Comments

Architectural Features (elevations)

TA-46-58 is an oversized one-story building that is rectangular in plan and measures 46 ft by 20 ft 2 in. and 12 ft high. The building is constructed with a concrete perimeter foundation, concrete floor slab, pumice concrete block walls, and a flat roof with steel joists, built-up roof system and gravel stop.

The south side of the building is the main entrance and consists of a pair of painted hollow-metal doors with adjustable louvers. These doors enter into the mechanical room. A single painted hollow-metal door with wire glass, approximately centered on the south wall, enters into the shop area. The south side also contains a single 3-light awning style window. The west side contains a concrete pad between this building and the adjacent TA-46-16 to the west. This area is covered with a corrugated fiberglass awning supported by steel columns. Under the awning is a second single painted hollow-metal door with wire glass. It is located on the west side near the north corner and also opens into the shop area. A bottle rack is located adjacent to the door. The north side of the building has four 2-light hopper-style windows set close to the roof line. This side also contains a corrugated aluminum canopy supported by steel columns that is located just below the bottom of the windows and spans the entire length of the building. The covered walkway area is enclosed on the north side by steel pipe railing. The east side contains a single mechanical louver set in the upper third of the wall.

Total sq ft 832

Architect/ Builder Los Alamos Scientific Laboratory

Alterations Addition of corrugated awning on west and north sides. Addition of concrete walkway on north side.

List of Drawings (Cntrl + Enter for para break)

ENG-C 26081
Sheet 2 of 23
Component Test Facility
Bldgs WA-16 & 58 (TA-46-16 & -58)
Modifications and Additions
Architectural Plan; Door, Window & Room Finish Schedules; Material Specifications
January 23, 1961

ENG-C 26083
Sheet 4 of 23
Component Test Facility
Bldgs WA-16 & 58 (TA-46-16 & -58)
Modifications and Additions
Architectural Elevations & Details Bldg WA-58
January 23, 1961

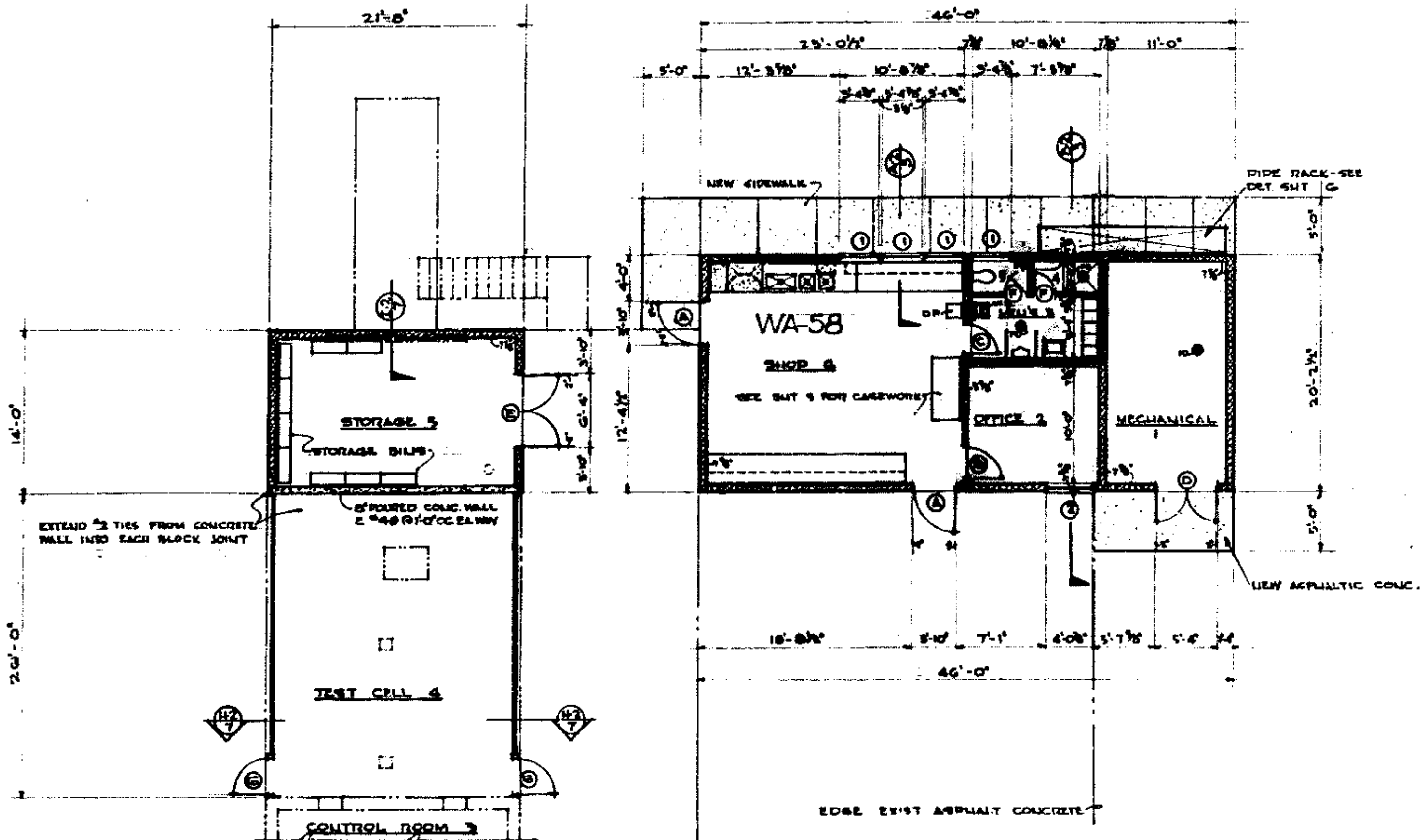
ENG-R 3174
Laboratory and Shop Bldg
Bldg WA-58, TA-46 (TA-46-58)
Floor Plan
July 20, 1983

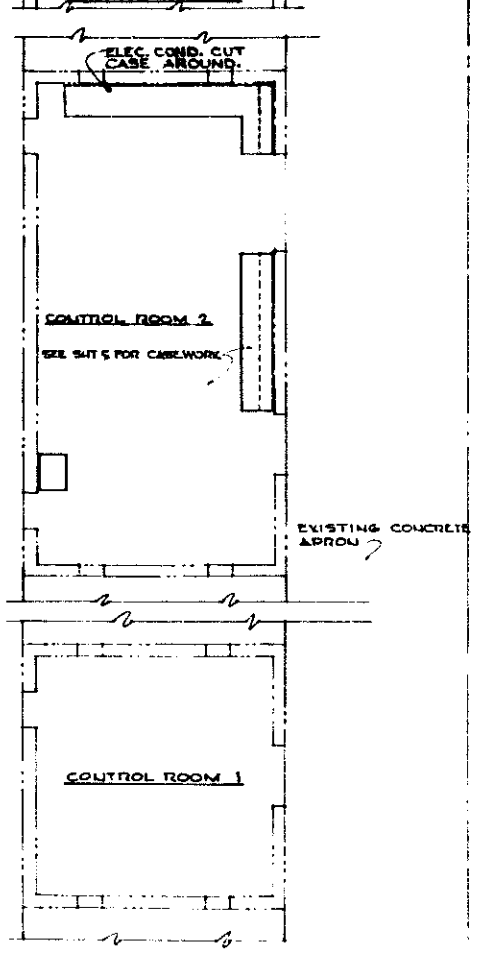
TA-46-16 South side with high by addition

TA-46-58 South side

TA-46-58 West and south sides

TA-46-58 North and west sides



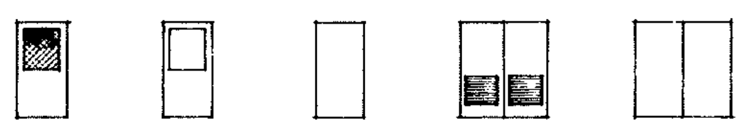


·FLOOR · PLAN··· WA-16

SCALE 1/8" = 1'-0"

DOOR · SCHEDULE ··

NO.	SIZE	TYPE	FRAME	REMARKS
A	3-6x7-0x1¾	FUG-W	14 GA. STEEL	UPPER PANEL CLEAR WIRE GLASS
B	3-0x7-0x1¾	FUG		UPPER PANEL CLEAR GLASS
C	2-6x7-0x1¾	F		NO GLASS
D	2-2-6x7-0x1¾	FL		BOTTOM LOUVER-ADJUSTABLE
E	2-3-0x7-0x1¾	FD		NO GLASS
F	1-10x6-10x1	F		SEE NOTE 1 BELOW
G	3-0x7-0x1¾	F	STEEL U	SEE DETAILS SHT 7



DOOR NOTES-
1. "SANYMETAL" FLUSH, ACADEMY TYPE WITH LATCH, ADJUSTABLE HINGES, SIDE STILES & COMBINATION COAT HOOK & BUMPER. BAKED ENAMEL FINISH OVER BONDERIZING. COLOR - 11552 BLUE.

WINDOW · SCHEDULE ··

NO.	SIZE	TYPE	MAKE	REMARKS
1	3-4⅞ x 2-9	412 BH	TRUSCON	CLEAR WIRE GLASS
2	4-0⅞ x 4-1	423 H	TRUSCON	CLEAR WIRE GLASS

WINDOW NOTES-
1. PROVIDE SPRING LATCH P-3461A, ONE(1) POLE P-1141 (6'-8" LONG) & BRONZE INSECT SCREENS.
2. STANDARD 3/8" MULLIONS

ROOM · FINISH · SCHEDULE ··

ROOM NAME	NO.	FLOOR: CERAMIC TILE	FLOOR: 1/8" VINYL TILE	FLOOR: CONCRETE			WALLS: CONCRETE BLK	WALLS: CONCRETE	WALLS: PLASTIC	WALLS: S.G.F. TILE		CEILING: ACOUST. TILE		WAINSC.: S.G.F. TILE		BASE: S.G.F. TILE	BASE: 4" VINYL		REMARKS
MECHANICAL	1			●			●												
OFFICE	2		●				●					●					●		SUSPEND CEILING TO 9'-0"
MEN'S TOILET	3	●					●							●		●			
SHOWER	4	●								●						●			
WATER CLOSET	5	●					●							●		●			
SHOP	6			●			●												
STORAGE	5			●			●	●											EXISTING FLOOR SLAB
TEST CELL	4			●				●	●										EXISTING FLOOR SLAB
CONTROL ROOM	3		●														●		
CONTROL ROOM	2		●														●		
CONTROL ROOM	1		●														●		

·MATERIALS · SPECIFICATIONS···

CERAMIC TILE — CERAMIC FLOOR TILE, UN-GLAZED, STANDARD PATTERN SIMILAR TO 'MOSAIC' TILE CO № 2185-N2. COLOR TO BE "VELVETONE" № 145. MOSAIC TILE CO., OR EQUAL.

VINYL TILE & BASE — 1/8" HOMOGENEOUS VINYL TILE № LT-511 "SANDPIPER" BY VINYL PLASTICS INC., 1825 ERIE AVE., SHEBOYGAN, WIS. OR EQUAL. BASE TO BE 4" HIGH, COLOR - BLACK.

CORRUGATED PLASTIC — 3'-6" x 8'-0" CORRUGATED PLASTIC OR FIBERGLAS SUITABLE FOR HEAVY DUTY USE EXTERIOR. MUST BE CAPABLE OF WITHSTANDING 30 PSF WINDLOAD WITHOUT SUFFICIENT DEFLECTION TO CAUSE PANELS TO BLOW OUT OF GUIDES.

S.G.F.T. — STANDARD STRUCTURAL GLAZED FACING TILE GT SERIES, VARIOUS SIZES & SHAPES AS REQUIRED. COLOR - BUFF.

ACOUSTICAL TILE — TILE TO BE "TRAVERTONE" BY ARMSTRONG OR EQUAL. MASTIC APPLICATION ON GYPSUM BOARD & SUSPEND AS DETAILED. SEE SHT 3.

MIRROR — 18 x 24 COPPER BACK, MIRROR QUALITY GLASS & CHROME-BRASS EDGES. ONE (1) REQ.
WASTE BASKET — ONE (1) REQ.
PAPER TOWEL CABINET — ONE (1) REQ.
TOILET PAPER HOLDER — ONE (1) REQ.
VENETIAN BLIND — ONE (1) REQ. FOR OFFICE 2. CUSTOM FIT TO WINDOW. CREAM OR IVORY COLOR.
LOCKERS — FIVE (5) STANDARD DOUBLE TIER LOCKERS 12" WIDE x 15" DEEP. PROVIDE LEGS.
STORAGE BINS — "EQUIPTO" BINS OR EQUAL AS FOLLOWS:
TWO (2) EACH № 1872
TWO (2) EACH № 56D
TWO (2) EACH № 1382
TWO (2) EACH № 138D
ONE (1) EACH № 125D
SHIP ALL UNITS KD & ASSEMBLE AT JOB SITE.
"EQUIPTO", AURORA, ILL.

THIS JOB MUST BE INSPECTED, AND ANY CHANGES APPROVED BY ENG-4
FANCHER PHONE 7-4656.

NO.	DATE	REVISIONS	BY	CHKD	GRP. LDR.	ENG. D. O.

AUTHORIZED FOR — HEALTH ~~AND~~ SAFETY: H-3, H-DO, RWS; SAFETY; FIRE PROT.; SEC.

LOS ALAMOS SCIENTIFIC LABORATORY
ENGINEERING DEPARTMENT
UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

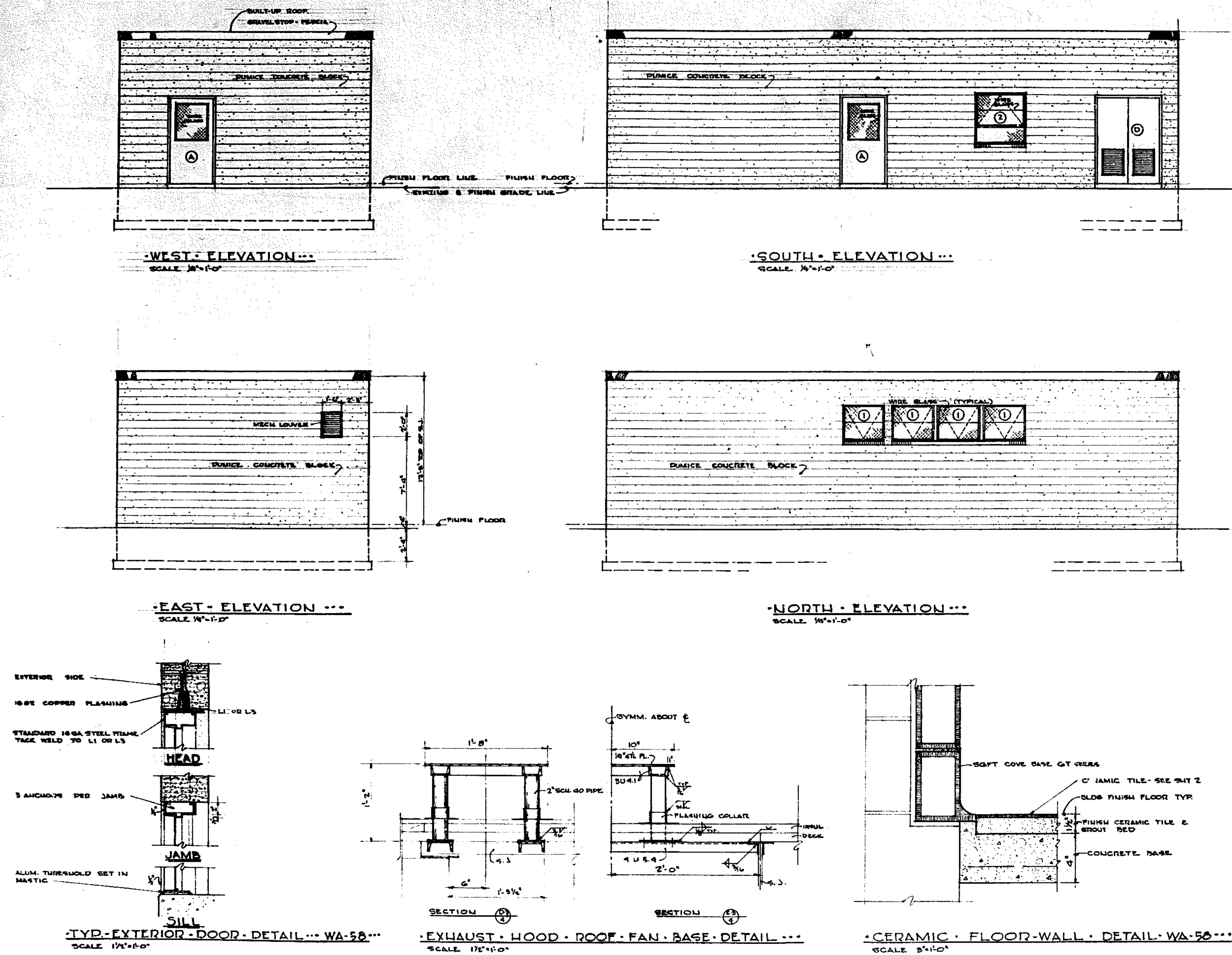
COMPONENT · TEST · FACILITY ··
MODIFICATIONS · & · ADDITIONS ···

ARCHITECTURAL PLAN; DOOR, WINDOW & ROOM FINISH SCHEDULES; MATERIAL SPECIFICATIONS

BLDGS WA-16 & 58 TA-46

CHECKED JPZ PROJ. ENG. JPZ	RECOMMENDED R.N. McDonald GROUP LEADER	APPROVED ENG. DEPT. OFFICE
DESIGNER R. TURNER DRAWN R. TURNER SCALE AS SHOWN	DATE JAN. 23, 1961 SHEET 2 OF 23	DRAWING NO. ENG-C-26081

C.A. NO. 16 LAB. JOB NO. 2391-46



THIS JOB MUST BE INSPECTED, AND ANY CHANGES APPROVED BY ENG-4
FANCHER PHONE 2-4656

NO.	DATE	REVISIONS	BY	CHKD		

AUTHORIZED FOR: HEALTH N-3 · SAFETY · FIRE PROT. · SEC. · N-DO

LOS ALAMOS SCIENTIFIC LABORATORY
ENGINEERING DEPARTMENT
UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

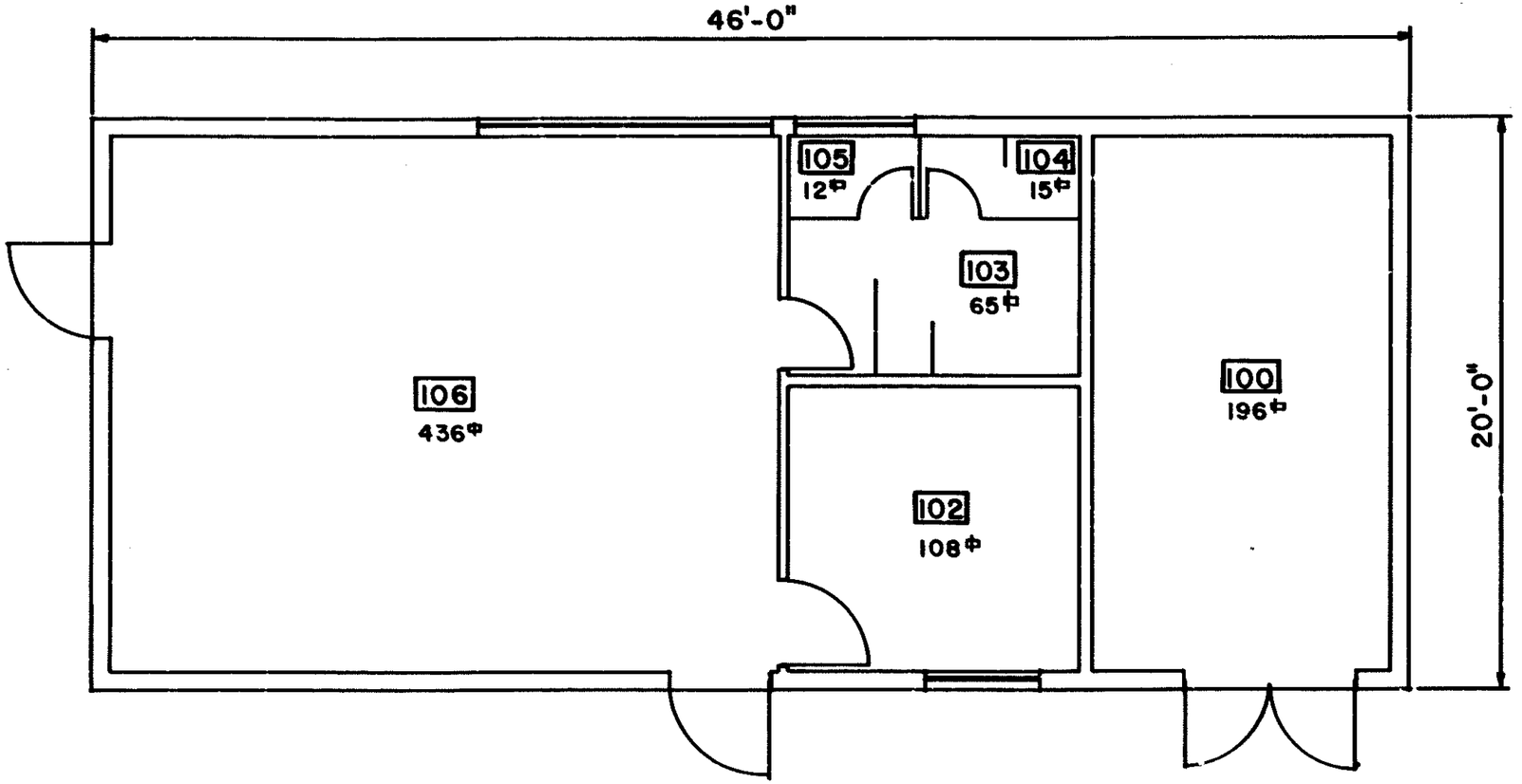
COMPONENT· TEST· FACILITY··
MODIFICATIONS· & · ADDITIONS···

ARCHECTURAL ELEVATIONS & DETAILS BLDG WA-58

BLDGS WA-16 & 58 TA-46

CHECKED JFL PROJ. ENG. JFL	RECOMMENDED R.N. McDonald GROUP LEADER	APPROVED ENG. DEPT. OFFICE
DESIGNER R TURNER DRAWN R TURNER SCALE AS SHOWN	DATE JAN. 23, 1961 SHEET 4 OF 23	DRAWING NO. ENG-C-26083

C.A. NO. 16 LAB. JOB NO. 2391-46



TOTAL $\frac{ft^2}{832}$

(3/16" = 1'-0")

0 5 10
GRAPHIC SCALE

MF

	DATE	REVISION	BY	CKD.	APP.
4	7-20-83	REDRAWN & REVISED TO STATUS OF 7-20-83	H&N		

UNIVERSITY OF CALIFORNIA
Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

LABORATORY & SHOP BLDG.
FLOOR PLAN

BLDG. WA-58 TA-46

SEC. CLASSIFICATION
CLASS. U
REVIEWER
DATE 10-24-83

SUBMITTED	RECOMMENDED	APPROVED
E Trujillo	D Ryan	Walt Eichhorst

DRAWN	H&N	DATE	SHEET NO.	DRAWING NO.
CHECKED	HUMBLE H&N	7-20-83	1 OF 1	ENG-R 3174

LANL TA- Building # 46-0420

Camera 1181352

Frame #s IMG_1536 through IMG_1542

Surveyor(s) K. Towery, K. Honig, e. McGehee, K. Garcia

Date 12-12-14

Los Alamos National Laboratory
RMT Historic Building Survey Form

Building Name Equipement Building UTMs easting 3968525 northing 384521 zone 13

Legal Description: Map USGS Friioles Ouad 2002 tnsp 19N range 6E sec

Current Use/ Function Equipment Building Original Use/ Function Generator Building

Date (estimated) 1968 Date (actual) Property Type Support

Type of Construction

Pre-Fabricated Metal ☑ Steel Frame ☑ Wood Frame ☐ CMU ☐ Reinforced Concrete ☐

Other Type of Construction Oversized # of Stories 1

Foundation Concrete Slab

Exterior CMU-Exterior ☐ Reinforced Concrete-Exterior ☐ Steel (galvanized) ☑ Steel (corrugated) ☑

Wood Siding ☐ Asbestos Shingles-Exterior ☐ In-Fill Panels ☐ Other-Exterior

Exterior Treatment (painted, stuccoed, etc)

Exterior Features (docks, speakers, lights, signs, etc) Lights on the north, south, and west sides; 2 graviity exhausters on roof exhaust, and lightning protection.

Addition CMU-Addition ☐ Reinforced Concrete-Addition ☐ Steel (galvanized)- Addition ☐ Wood ☐

Steel (corrugated)-Addition ☐ Asbestos Shingles-Addition ☐ Other- Addition

Exterior Treatment-Addition

Exterior Features-Addition

Roof Form Slanted/Shed ☑ Gable ☐ Other Roof Type

Degree of Pitch/ Slope Slight

Roof Materials Corrugated Metal ☑ Rolled Asphalt ☐ Asbestos Shingles ☐ 4-Ply Built Up ☐

Other Roof Materials Ribbed panel roof siding.

Window Type Casement ☐ Single Hung Sash ☐ Double Hung Sash ☐ Fixed Window ☐

Other Window Type

# of Each Window Type/ Comments None

Glass Type Clear ☐ Wire Glass ☐ Opaque ☐ Painted Glass ☐ Glass Block ☐

Light Pattern

Door Type Personnel Door Types Exterior Fire Door ☐ Single ☑ Double ☑ Roll-up ☐ Sliding ☐
Hollow Metal ☑ Solid Wood ☐ 1/2 Glazed ☑ Paneled ☐
Louvered ☐ Painted ☐

Interior Fire Door ☐ Single ☐ Double ☐ Roll-up ☐ Sliding ☐
Hollow Metal ☐ Solid Wood ☐ 1/2 Glazed ☐ Paneled ☐
Louvered ☐ Painted ☐

Equipment Door Types Exterior Fire Door ☐ Single ☐ Double ☑ Roll-up ☐ Sliding ☐
Hollow Metal ☑ Solid Wood ☐ 1/2 Glazed ☐ Paneled ☐
Louvered ☐ Painted ☐

Interior Fire Door ☐ Single ☐ Double ☐ Roll-up ☐ Sliding ☐
Hollow Metal ☐ Solid Metal ☐ 1/2 Glazed ☐ Paneled ☐
Louvered ☐ Painted ☐

# of Each Door Type/Comments: Single half-glazed hollow metal doors on the south and west sides. The south side also has a set of double-height equipment doors, and a single hollow metal door leading into the filter house. North side has a pair of hollow metal doors.

Interior Wall Gypsum Board ☐ Reinforced Concrete- Interior ☐

CMU- Interior ☐ Plywood ☐ Other- Interior

In-Wall Electrical Wiring ☐ On-Wall Electrical Wiring ☐

Ceiling Drop Ceiling ☐

Interior Comments (Equipment, etc)

Degree of Remodeling Unknown/None

Condition Excellent ☐ Good ☑ Fair ☐ Deteriorating ☐ Contaminated ☐ Burned ☐

Associated Buildings ☑

If yes, list building names and #s TA-46-16

Integrity Good

Significance Eligible

Eligible Under Criterion A ☑ B ☐ C ☐ D ☐ Not Eligible ☐

DOE Themes

Nuclear Weapon Components and Assembly ☐
Nuclear Weapon Design and Testing ☐
Nuclear Propulsion ☑
Peaceful Uses: Plowshare, Nuclear Medicine, Nuclear Energy, Nuclear Science ☑
Energy and Environment: Research and Design Projects ☑

LANL Themes

Weapons Research and Design, Testing, and Stockpile Support ☐ Super Computing ☐

Reactor Technology ☑ Biomedical/Health Physics ☐ Strategic and Supporting Research ☑

Environment/Waste Management ☐ Administration and Social History ☐ Architectural History ☐

Recommendations/ Additional Comments

Architectural Features (elevations)

This building is a metal structure typical of the era pre-engineered building. It consists of steel beam and channel structure with galvanized ribbed panel exterior and roof siding. On the South end, there exists one personnel door and a double height, 10 foot wide equipment door. Similar doors exist on the North side. The building contains approximately 1344 square feet, it is 28 feet wide. 48 feet long and 20 feet high. The roof is a low slope panel at 2/12 slope. There are two four foot diameter gravity exhauster on the roof. Although not completely visible, a substantial concrete foundation system exists; heavy, rotating equipment was original in the building.

Total sq ft 1344

Architect/ Builder Los Alamos Scientific Laboratory

Alterations

List of Drawings (Cntrl + Enter for para break)

ENG-C 37036
Sheet 1 of 5
Bldg. WA-16, WA-100 & WA-101, TA-46 (TA-46-16, -100, & -101)
2.5 M.W.D.C. Power Supply
Plot Plan
(Generator Building is designated as Bldg WA-100)
September 29, 1968

ENG-R 3157
Bldg WA-100, TA-46 (TA-46-100)
Floor Plan
(Generator Building is designated as Bldg WA-100)
March 7, 1969

ENG-R 3163
Bldg. WA-16, TA-46 (TA-46-16)
Test Building No.1
Basement & First Floor Plan
(Generator Building is designated as "Room 9" of Building 16)
July 19, 1983

ENG-AB 359
Sheet 2 of 2
Bldg 16 & 420, TA-46 (TA-46-16 & -420)
Test Building No. 1
As-Built Record Floor Plan
Architecture: First Floor Plan
May 3, 1995

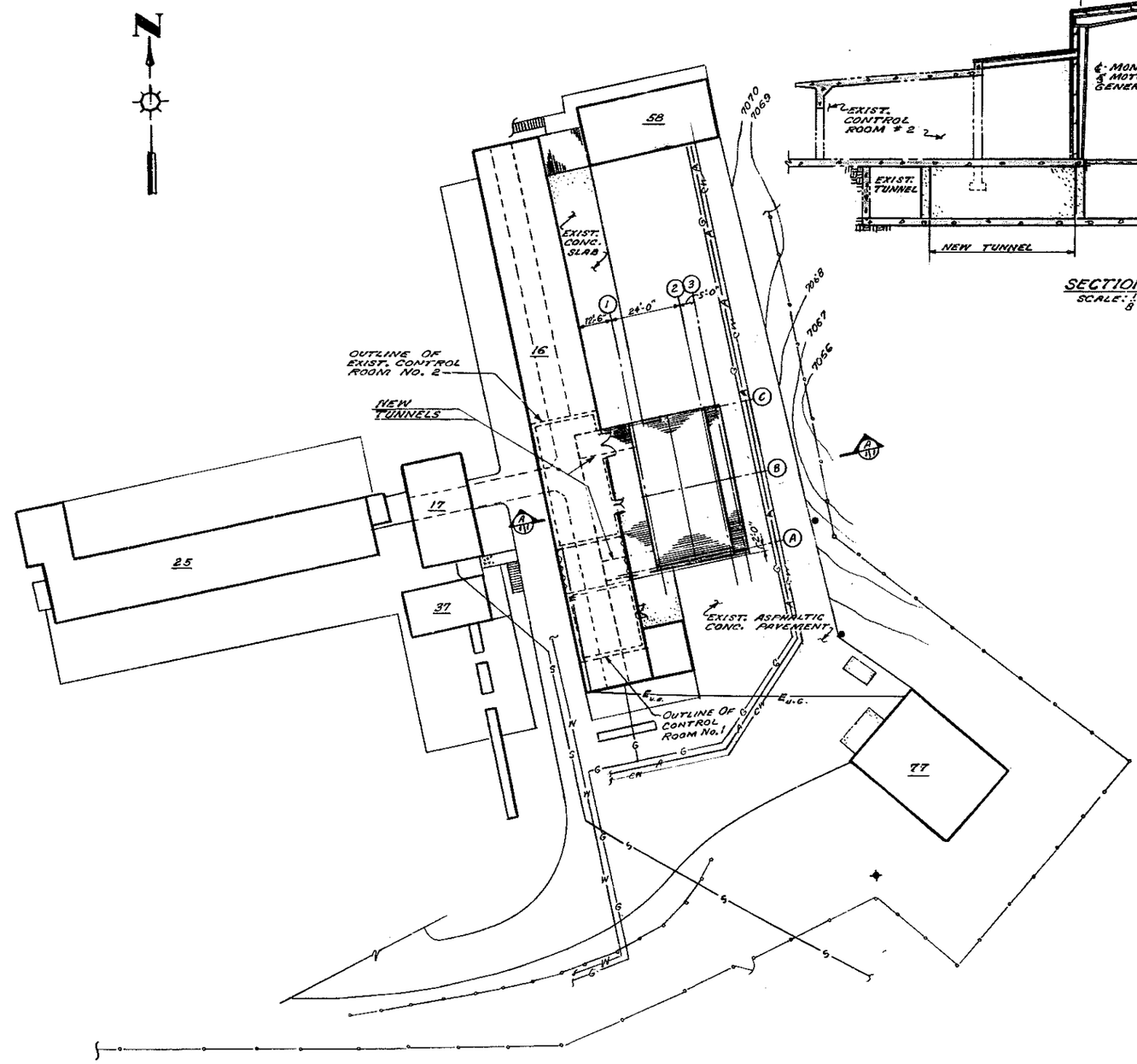
TA-46-58 South and east sides

TA-46-420 South side

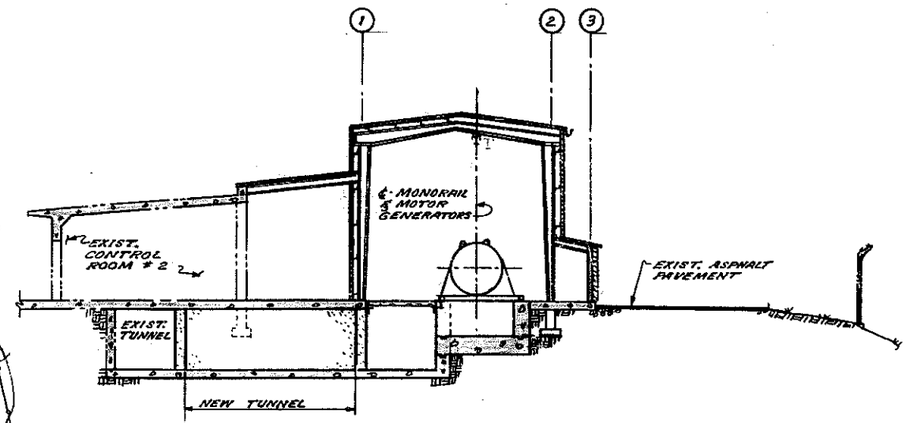
TA-46-420 East and north sides

TA-46-420 West side

PLOT PLAN IS LOCATION PLAN



PLOT PLAN
SCALE: 1" = 20'-0"
CONTOUR INTERVAL = 1'-0"



SECTION A/11
SCALE: 1/8" = 1'-0"

STRUCTURAL NOTES

1. ALL CONSTRUCTION ~~THROUGHOUT THIS PROJECT~~ SHALL CONFORM TO STANDARD A.E.C. CONSTRUCTION SPECS. FOR TECH. AREAS.
2. PATCH & REPAIR ALL AREAS THAT ARE DISTURBED DURING CONSTRUCTION TO MATCH EXISTING ADJACENT AREAS.
3. ALL CONCRETE THIS PROJECT SHALL TEST 3000 P.S.I. @ 28 DAYS.
4. TEST MONORAIL & HOIST PRIOR TO ACCEPTANCE IN ACCORDANCE WITH CURRENT SAFETY STANDARDS FOR LIFTING DEVICES.
5. LABEL MONORAIL IN ACCORDANCE WITH CURRENT STANDARD MARKING PROCEDURE TO CLEARLY INDICATE THE CAPACITY (10,000 LBS.) TO USER.
6. EXPANSION JOINT MATERIAL TO BE STRUCTURAL FIBERBOARD IMPREGNATED WITH ASPHALTIC COMPOUND. USE CORK EXPAN. FILLER AROUND BOTH M.G. FOUNDATIONS.
7. ALL SOIL BEARING AREAS TO BE COMPACTED TO 95% MAX. DENSITY @ OPTIMUM MOISTURE CONTENT.
8. STRUCT. STEEL FRAMING TO BE AISC TYPE A36 STEEL. WELDED CONN. TO BE W/ E70XX ELECTRODES & BOLTED CONN. TO BE A325 M.S. BOLTS, THREADS MAY BE INCLUDED IN THE SHEAR PLANES.
9. PROVIDE & INSTALL STRUCTURE NUMBER SIGNS IN ACCORDANCE WITH LASL STRUCTURE NUMBERING POLICY.
10. PAINT ALL STRUCTURAL STEEL WITH (2) COATS OF "TOTRUST" #31 GREY.
11. FIELD VERIFY DIMS. DO NOT SCALE PRINTS FOR DIM.
12. PAINT EXTERIOR TUNNEL WALLS BELOW GRADE WITH (1) COAT OF COAL TAR PITCH.

LEGEND

- EXIST. SECURITY FENCE.
- EXIST. POWER POLE.
- EXIST. LIGHT POLE
- E.U.G. — EXIST. UNDERGROUND ELEC. POWER LINE
- W — EXIST. WATER LINE.
- S — EXIST. SEWER LINE.
- G — EXIST. GAS LINE.
- CW — EXIST. COLD WATER LINE
- A — EXIST. 1" AIR LINE

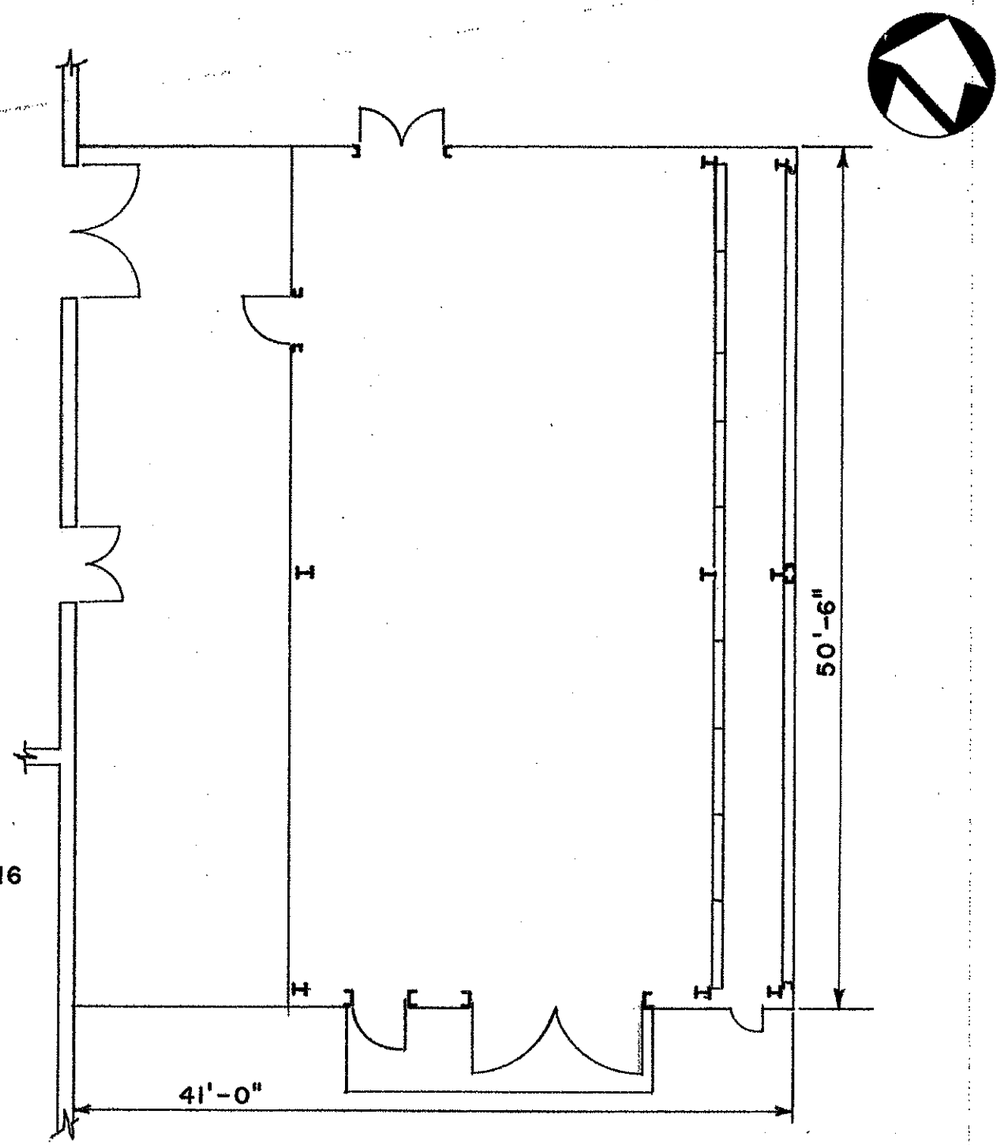
NO.	DATE	REVISIONS	BY	CHKD.	GRR	D.O.	GRR	CHKD.
1	11-24-48	ADDED NOTE No. 12 - ADDED SHT. 4	W.F.	J.F.			GRR	D.O.

THIS JOB MUST BE INSPECTED AND ANY CHANGES APPROVED BY ENG-4 PHONE

los alamos
scientific laboratory
engineering department
UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

AUTHORIZED FOR		2.5 M.W.D.C. POWER SUPPLY PLOT PLAN			
SECURITY N.A					
SAFETY TEE					
HEALTH N.A					
FIRE PROT. TEE		BLDS. WA-16, WA-100 & WA-101 TA-46			
DIVISION N-DO	SUBMITTED	APPROVED	APPROVED		
GROUP N-7	PROJ. ENGR.	ENGR. GROUP LEADER	ENGR. DEPT. OFFICE		
	CHECKED SFZ	DATE 9-29-48	SHEET C-1	1 OF 5	
ENG.-5 N.A	DESIGNED SULLIVAN	LAS JOB NUMBER 9347-46	DRAWING NO. ENG-C-37035		
SCALE As NOTED	DRAWN SULLIVAN				

1 PHASE A



PLAN

SCALE 1/8" = 1'-0"

TOTAL SQ FT 2070

Voided 3/13/74
Floor Plan is shown
on Eng Dwg. R3163

los alamos scientific laboratory
engineering department
UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

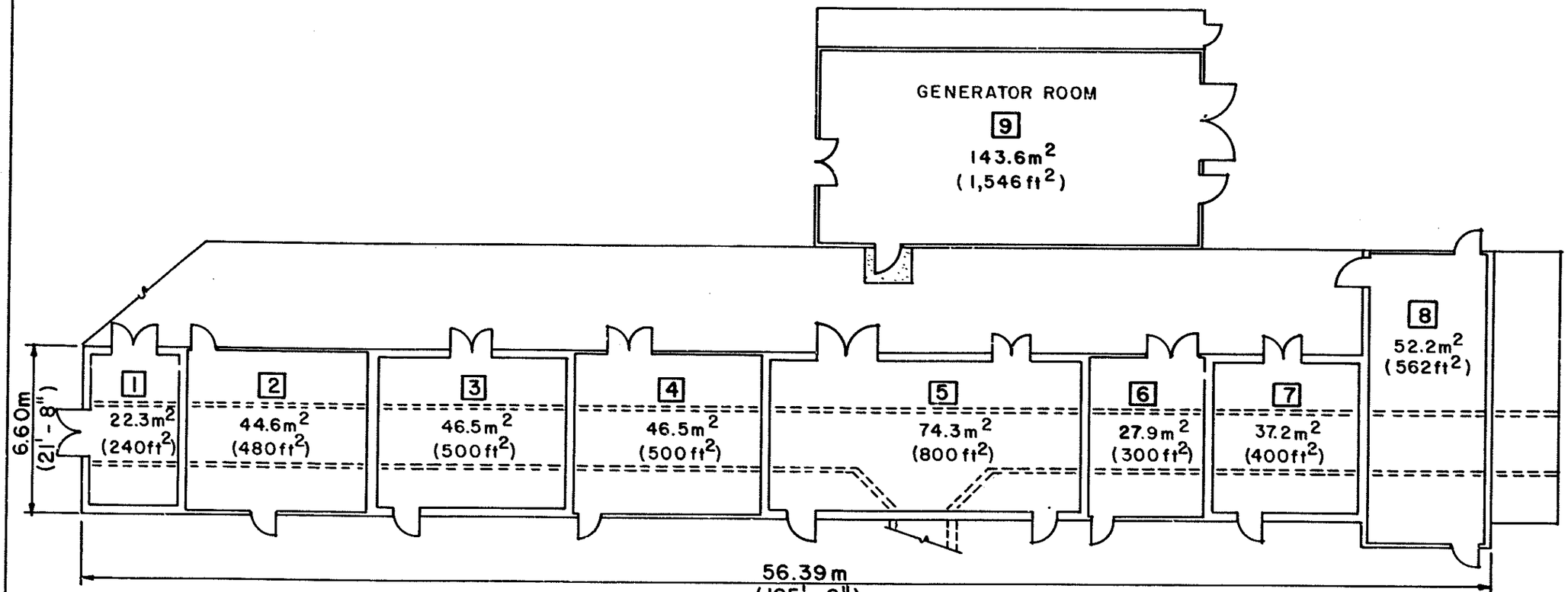
FLOOR PLAN

BLDG WA-100 TA-46

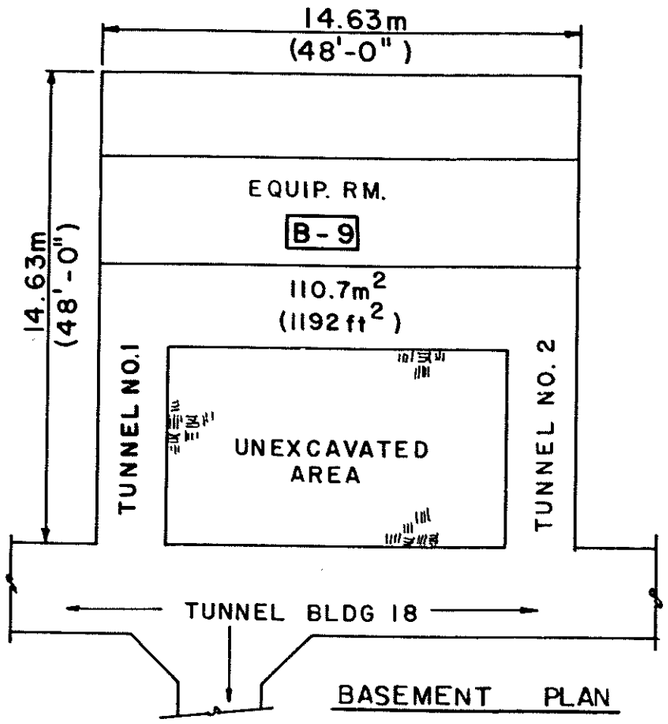
AUTHORIZED FOR	SUBMITTED	APPROVED	APPROVED
LASL SEC.	PROJECT ENGR. DW Parker	ENGR. GROUP LEADER JE Rivard	ENGR. DEPT. OFFICE for LPK
AEC SEC.	CHECKED BY BENNORTH	B. A. NO.	DATE 3-7-69
SAFETY	DESIGNED BY	C. A. NO.	SHEET 1 OF 1
HEALTH	DRAWN BY DAVIS	L. J. NO. 3347	DRAWING NO. ENG—R 3157

THIS JOB MUST BE INSPECTED AND ANY CHANGES APPROVED BY ENG-4 PHONE

K•E ALBANENE® TRACING PAPER LA 2474



FIRST FLOOR PLAN



BASEMENT PLAN

1.5mm = .30m
1/16" = 1'-0"

0m 2m 4m 6m
0 5 10 20
GRAPHIC SCALE

TOTALS	m²	ft²
	605.72	(6520)

REV.	DATE	REVISION	BY	CKD.	APP.
8	2-6-84	REVISED TO STATUS OF 2-6-84	H&N		
7	7-19-83	REDRAWN & REVISED TO STATUS OF 7-19-83	H&N		

MF

UNIVERSITY OF CALIFORNIA
Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

TEST BUILDING NO. 1
BASEMENT & FIRST FLOOR PLAN

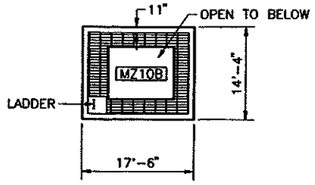
BLDG. WA-16 TA-46

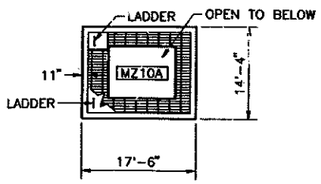
SEC. CLASSIFICATION
CLASS. U
REVIEWER Mabud
DATE 3684

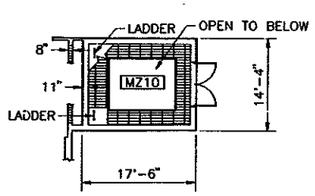
SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	D. Rupp	W. T. Grant

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
H&N	HUMBLE H&N	7-19-83	1 OF 1	ENG-R3163

3/30/84

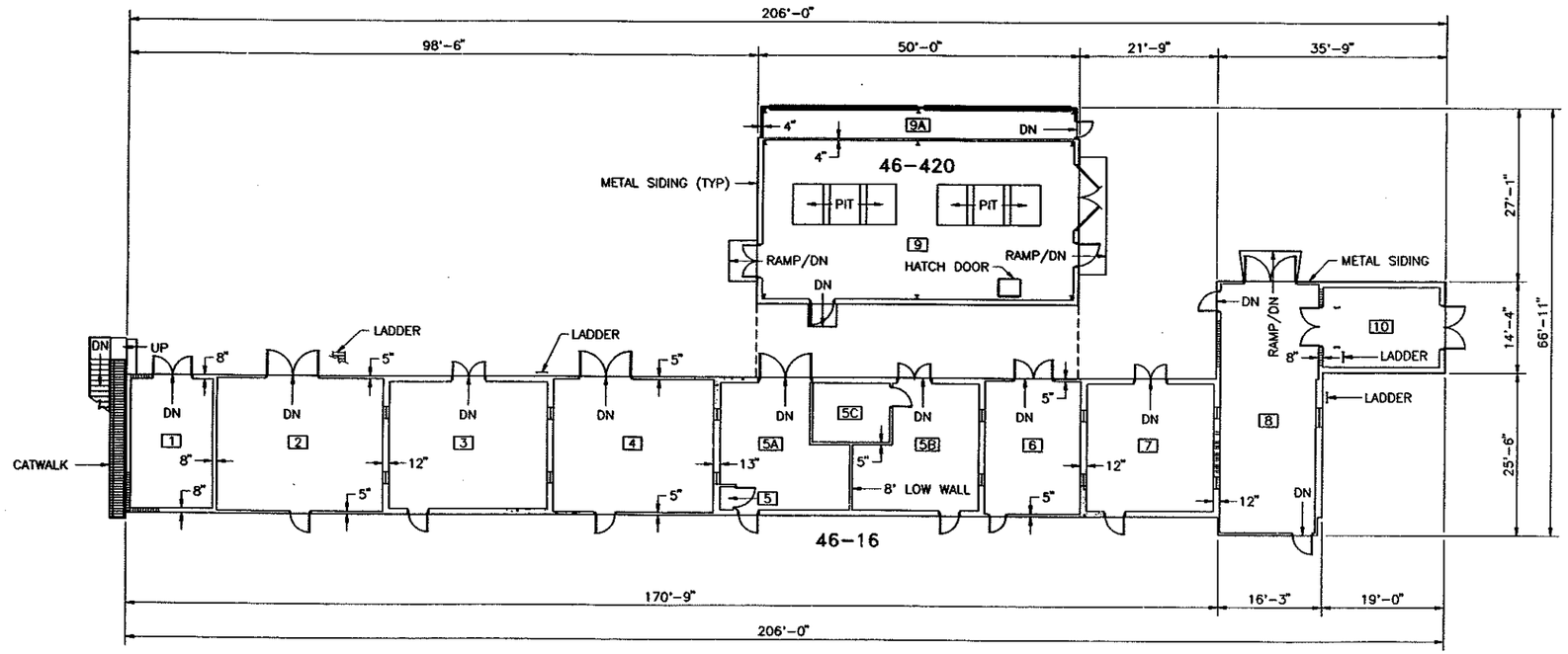






MEZZANINES ABOVE ROOM 10

SCALE: 3/32" = 1'-0"



FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

12 9 6 3 0 12 24 48
GRAPHIC SCALE

N

FIELD VERIFIED 3-27-95

ROOM INFORMATION CHART

BUILDING	RM NO	NET SQ FOOTAGE	BUILDING	RM NO	NET SQ FOOTAGE
16	1	265	16	7	418
16	2	559	16	8	604
16	3	513	16	10	231
16	4	543	16	MZ10	107
16	5	11	16	MZ10A	108
16	5A	345	16	MZ10B	107
16	5B	345	420	9	1028
16	5C	118	420	9A	236
16	6	332			

TOTAL ROOM NET SQUARE FOOTAGE (THIS SHEET) = 5,870

GROSS SQUARE FOOTAGE (THIS SHEET) = 6,489

TA 46-16 TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 7,318

TA 46-16 GROSS SQUARE FOOTAGE (BUILDING) = 7,975

TA 46-420 TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 1,264

TA 46-420 GROSS SQUARE FOOTAGE (BUILDING) = 1,544

LEGEND

CONCRETE
CONCRETE BLOCK
LOUVER
WINDOW
WOOD OR METAL STUD
CHAIN LINK FENCE
I COLUMNS

NOTES

1. ALL EXTERIOR WALLS ARE 10" THICK UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 11" THICK UNLESS OTHERWISE NOTED.
3. REFERENCE DRAWING ENG-R3163.
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, VAULTS, AND ENCLOSED PASSAGES.
6. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.

MF	NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	REL	SUB	REC	APP

JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT RECORD FLOOR PLAN
TEST BUILDING NO. 1
ARCH: FIRST FLOOR PLAN

DRAWN: D. TIDEMAN
VERIFIED: DWT/CM/PS
CHECKED: RR/YTB
RELEASED: C. SANDOVAL
DATE: 5-3-95

BLDG 16 & 420 TA-46

SUBMITTED: JERRY FORTE
RECOMMENDED: FRED THOMPSON 7/19/95
APPROVED: FRED THOMPSON 7/19/95

Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET 2 OF 2

CLASSIFICATION U REVIEWER T. GUSDORF DATE 7-18-95

PROJECT ID 7556

DRAWING NO AB359

REV

REC'D ___ LOGGED ___ TO VAULT 7/26

JCI NO 91-011