

TO: Mr. Theodore B. Jenson, AEC Operations Office

FROM: Wright H. Langham

SUBJECT: Hospital and Bio-Medical Building Plan

August 27, 1948

At a recent meeting of representatives of the University of California, The Operations Office of the AEC and representatives of W. C. Kruger and Associates the preliminary plans for the hospital and bio-medical building were discussed.

Preliminary cost estimates of the building program were considerably greater than the money available at present. It was felt, however, that it is imperative that a hospital and occupational, medical and bio-medical research program exist at Los Alamos. It was agreed that the isolation of the Los Alamos community necessitates the establishment of a Department of Sanitation and Public Health. It was also agreed that the programs must be supported by the building of adequate hospital and bio-medical research facilities.

I am writing this memorandum in an attempt to support and justify the preliminary plans that have been drawn up for the hospital and bio-medical building to provide facilities for the above programs. The following outline gives a general justification for the research, public health and sanitation, and occupational medical facilities asked for in the preliminary plans submitted by the W. C. Kruger and Associates.

1. General Justification of a Bio-Medical Program at Los Alamos:

A. Hospital Facilities: The need for good hospital facilities at Los Alamos is an obvious one and I am sure needs no further justification.

B. Bio-Medical Research and Occupational Medical Program:

1. There is a definite need for facilities to support rather complete and specialized safety and occupational medical programs for the protection and health of all persons working at Los Alamos. This need arises from the fact that almost every known type of occupational hazard exists at Los Alamos to a greater or lesser degree. In addition, to the more common hazards, there exist a number of hazards that are specific to Los Alamos and to the Atomic Energy Development program.

There is a need for facilities for doing bio-medical research on problems specific to Los Alamos and of a sufficiently classified nature as to be inconvenient to carry out elsewhere.

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3. There is a need for concentrated research effort within the AEC on acute radiation effects. This is especially necessary (a) in case of accidents at Los Alamos involving critical amounts of fissionable material, (b) in case of war, involving both the offensive and defensive application of atomic weapons, (c) in case of the future development of atomic power for peace time purposes. Los Alamos seems to be the logical location for research of this nature.
4. Bio-medical research facilities are needed at Los Alamos in order to meet commitments of the AEC to the public and to such agencies as the National Cancer Society. As a specific example, it may be pointed out that the AEC has committed Los Alamos to the task of doing research on the use of atomic energy for the treatment of cancer patients. No facilities exist at the present time to carry out this commitment.
5. The AEC is committed to a training program in the medical aspects of atomic energy at its various installations for both civilian and military personnel. Desirable facilities for training do not exist at Los Alamos at the present time.
6. A bio-medical program at Los Alamos seems desirable in order to take advantage of the highly specialized talent and facilities already accumulated at this site. Equipment is available at Los Alamos that makes possible fundamental research in the biological and medical sciences that cannot be conducted elsewhere at present.
7. A rather intensive research program is also needed to aid in attracting and holding high caliber medical personnel to staff the hospital under a salaried medical plan. If an excellently trained medical staff is to be retained on a salary basis, it will be necessary to offer research as an additional inducement. This is one of the primary reasons for combining the bio-medical facilities with the hospital.
8. Last but not least, excellent facilities for a bio-medical research and safety and occupational medical programs are essential to the legal protection of the AEC in case of future law suits involving leukemias and other malignancies known to be associated with radiation and radioactive materials.

II. Specific Justification of Facilities Proposed in the Bio-Medical Portion of the Preliminary Building Plan:

A. Ground Floor Plan:

1. North and West Wings (Animal Quarters): Adequate animal quarters are an essential part of any research program in the medical and biological sciences. Rather elaborate quarters are necessary because of the special nature of the problems associated with radiation and radioactive substances. A number of small animal experimental laboratories are needed because of the necessity of isolating individual experiments in order to prevent cross-contamination from one experiment to another.

2. South Wing:

a. Storage: The need for adequate storage facilities is, of course, an obvious one and need not be justified other than to say that it is not only functional as storage space, but provides space for further expansion of research facilities.

b. Special Ground Floor Laboratories: Certain laboratories are needed on the ground floor for performing work in which vibration must be held to a minimum. As a specific example, the ultra-centrifuge and electrical diffusion techniques.

B. First Floor Plan:

1. West Wing:

a. Occupational Medical Department: These facilities are imperative for the conduction of an adequate pre- and post- employment physical examination program which constitutes an essential part of any occupational medical program. The function of this department is not only the health of the employees of all Los Alamos contractors, but also the maintenance of adequate medical records for the legal protection of the AEC.

2. South Wing:

- a. The south wing of the proposed structure provides for (a) facilities for the Pathology Department which will function as an essential feature of both the hospital and the occupational medical and research activities and (b) facilities for the Department of Public Health and Sanitation. This department is a community activity and is justified on the same basis at Los Alamos as in any other community. There is additional justification, however, at Los Alamos because of the isolated nature of the community and because there exists sewage and sanitation problems peculiar to the Los Alamos community as a result of the nature of the work being conducted in the laboratory.

3. North Wing:

- a. Industrial Engineering and Special Toxicology: Special facilities must be provided for the diagnosis of exposure of laboratory personnel to the special material processed at Los Alamos. These include plutonium, uranium, and others not mentioned because of their highly classified nature. Likewise, large facilities must be provided for the adequate measuring and control of the external radiation hazards. A Radiation Dosimetry Department has been proposed which will permit the maintaining of a complete record of the radiation exposure of every individual entering the technical areas of the Los Alamos Laboratory. This is already established practice at both the Hanford and Oak Ridge Labs.
- b. Safety Department: Facilities are provided in the proposed plan for the operation of an adequate general safety program for the entire community. The function of such a Safety Department is essentially that of a Safety Dept. in any large industrial organization. The value of a program of this nature has been proved by numerous industrial organizations of which DuPont is an outstanding example.

4. East Wing: (Area joining hospital proper)

- a. In the first floor plan laboratories are provided for all routine clinical tests, such as blood chemistry, bacteriology and hematology. These facilities are placed in such a position as to serve jointly both the out patient department of the hospital and the occupational medical department.

C. Second Floor Plan:

1. West Wing: Electronics and Work Shop. This area provides facilities for the department whose function, in cooperation with the Department of Biophysics, is to maintain all radiation detection instruments used for the radiological safety of all persons working with radiations and radioactive materials at the Los Alamos Laboratory. This is an all project service department which is operated under the Occupational Medical Program.
2. South Wing: The proposed plan for the southwing provides facilities for the Department of Biophysics, the primary purpose of which is to design and test radiation detection instruments and to do applied and fundamental research on the biophysical aspects of radiation damage and ionizing radiations.
3. North Wing: The plan of the north Wing provides facilities for applied and fundamental research in radiobiology and physiology, with special emphasis on the more acute effects of radiation. Facilities are provided for specialized research by the medical staff of the hospital on cancer and related diseases, in accordance with the proposed program between the AEC and the National Cancer Foundation.
4. East Wing: (Area joining hospital proper): This area is proposed as an observation area for the observation of personnel exposed to special industrial hazards existing at Los Alamos. A specific example of its use is the collection of 24-hour urine samples from all persons exposed to plutonium. The analyses of these samples provides the basis for the diagnosis of exposure of personnel to plutonium.

D. Third Floor Plan:

1. West Wing: Facilities proposed in the west wing of the plan are an auditorium for the use of the entire staff of the hospital and the Bio-Medical addition for seminars and other meetings. Administrative offices and staff conference room are provided for the director of the Los Alamos Bio-Medical Research Program.
2. South Wing: The south wing provides for a Department of Organic Chemistry. At the present time there is not an Organic Chemistry Department in the entire Los Alamos Laboratory. The function of this department is the labelling of organic compounds with tracer elements, the synthesis of special compounds for general laboratory use and the production and processing of special organic materials essential to the hospital and bio-medical research program.

Provision is also made in the south wing for a special analytical chemistry department (both organic and inorganic) to serve the bio-medical research program.

3. North Wing: The entire north wing of the third floor is devoted to bio-chemical research. The phases of research anticipated are (a) investigation of the bio-chemical effects of acute radiation dosage, (b) the application of radioactive tracers to applied and fundamental research in biology and medicine, (c) the toxicology of special hazardous materials peculiar to the Atomic Energy Program and to Los Alamos, (d) development of methods for diagnosing the exposure of personnel to special materials peculiar to the Atomic Energy Program to to Los Alamos.
4. East Wing: (Joining Hospital): A library is proposed to serve jointly both the hospital staff and the staff of the Bio-Medical addition.

- E. Fourth Floor and Roof Plan: The fourth floor plan provides facilities for housing hood fans, distilled water plant and other general laboratory utilities. A small greenhouse is also specified to provide for possible experiments on effects of radiation and radioactive materials on plant life. Studies on plants may be necessary in connection with radioactive waste disposal problems

and in connection with legal questions arising out of situations like exist at Alamogordo, the site of the first bomb test.

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Wright H. Langham

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