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OAK RIDGE INSTITUTE OF NUCLEAR STUDIES

PRELIMINARY PROPOSAL FOR
CLINICAL TRAINING FACILITIES
AND
AIR CONDITIONING

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UNITED STATES ATOMIC ENERGY COMMISSION
OAK RIDGE OPERATIONS
OAK RIDGE AREA

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OAK RIDGE INSTITUTE OF NUCLEAR

PRELIMINARY PROPOSAL
CLINICAL TRAINING FACILITIES AND
AIR CONDITIONING

SUBPROGRAM 9600
PROJECT NUMBER 6027 A (F. Y. 1956)

AUGUST 3, 1955

REFERENCE: CORRESPONDENCE TO HERMAN M. BOTH
FROM WILLIAM G. POLLARD, DATED
MAY 26, 1955

SUBJECT: TRANSMITTAL OF PRELIMINARY
PROPOSAL FOR CLINICAL TRAINING FACILITIES

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PRELIMINARY PROPOSAL
FOR
CLINICAL TRAINING FACILITIES
AND
AIR CONDITIONING
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PRELIMINARY PROPOSAL
FOR
CLINICAL TRAINING FACILITIES
AND
AIR CONDITIONING

APPROVALS

Submitted: William G. Pollard Aug 3, 1955
(Date)

Concurred: _____
(Date)

Recommended: _____
(Date)

Approval
Recommended: _____
(Date)

Approval: _____
(Date)

CLINICAL TRAINING FACILITIES AND AIR CONDITIONING

General Description of Project

The Clinical Training Facilities addition to the Cancer Research Hospital is proposed to be located on the north side and adjacent to the existing building in such a way that access is provided from both the laboratory building and patient sections. Site plan on sketch ORIHS Med-660 in the appendix shows the proposed building location with respect to the existing buildings. The proposed building will be a single-story structure of similar architecture as the laboratory building and will meet minimum standards of safety and fire protection.

It is estimated that 2,200 square feet of floor space will be required to carry on training activities. Space should be divided into three rooms, a small room opening onto the existing patio and connecting with the patient section of the hospital, a larger room in the center for clinical procedures, and on the west end a large room for instrument demonstration and also providing access to the existing laboratory facilities.

Space within the existing single story building is to be remodeled as indicated on Appendix sketch ORIHS Med-660 to provide autoradiography rooms for both clinical and training programs. Generally, the work required will be rearranging partition walls, services, and utilities.

Year around air conditioning is required for the proposed Clinical Training Facilities and autoradiography rooms as well as existing laboratories and offices in the Medical Laboratory Building. It is estimated that only 7,360 square feet of floor area will be affected since such areas as the counting, operating and balance rooms were air conditioned when the laboratory building was constructed.

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Justification of Basic Need

Medical Division training activities relate to two areas: training within the Division and cooperation with the Special Training Division.

There is participation in at least eight Special Training Division radioisotope technique courses each year involving clinical demonstrations to 25 people during five four-hour sessions during each course. It is important to have adequate space to accommodate the group at one time in order to avoid repetitive measurements on selected patients and to better utilize medical staff time by reducing the number of demonstrations for each group. The Advanced Medical Training Course as well as the Veterinary Radiological Health, Biochemistry and Instrumentation courses require demonstrations in administration of isotopes and other clinical procedures to large numbers of physicians and participants. Adequate space for handling these groups has been sorely needed and has in the past prevented giving the demonstrations.

Training within the Medical Division involves several programs. During a year, 6 to 12 resident physicians are given training for 3 to 6 month periods. The clinical resident physician program requires that the physician spend about 75 per cent of his time in clinical work and the remaining time working on problems related to his own interest. These physicians must be instructed in clinical methods currently used for treatment of patients which requires that the physician make duplicate instrument measurements performed by staff technicians. As the physician becomes trained, his own measurements are used in patient studies.

Visiting foreign scientists on assignment with the Institute, and other visiting physicians, are given demonstrations and provided with facilities so far as possible in order that they may gain experience in

Medical Division clinical techniques and knowledge of medical instrumentation. The increased demand for such services in present facilities interrupts and interferes with present routine operational procedures.

In addition, it is becoming more evident that the shortage of technicians and nurses trained and experienced to work with radiation has handicapped the medical profession and medical schools in this field of endeavor. This type of training has not been done in Institute facilities but there is a growing need for such training and space is needed to carry out a training program in an adequate manner.

In the proposed 2,200 square feet in the new building, one large room is to be used for conducting demonstrations around tables in the administration of microcurie doses of test material and for demonstration of administering isotopes to selected patients and the related counting techniques. The other large room would have fixed items of equipment such as thyroid uptake and scanning devices, scintillation well counting, clinical training table, scintiscanners and other associated equipment. The smaller room is a patient waiting and preparation room with no special equipment at this time.

The alteration in the existing building provides enlarged autoradiography dark room and preparation space convenient to the clinical training facility. Autoradiography has become an important tool in clinical procedure. It is a part of the training program, and is a routine clinical program.

The above activities would offer essential year-round utilization of the proposed Clinical Training Facilities.

The need for improvement in summer working conditions in the Medical Division laboratories has been felt for several years. Air conditioning.

is indicated for the proposed Clinical Training Facilities and remodeled autoradiography rooms. Large groups will use these rooms for extended periods of time. Also, within these rooms will be many delicate instrumentation devices and instruments and equipment that will generate considerable heat.

Programs currently in progress and particular studies requiring controlled temperature will be benefited substantially by air conditioning. Retention of photographic films at summertime temperatures creates a problem in the processing of autoradiograms. This technique is an important procedure studying the uptake and distribution of isotopes in tissues. Low level counting procedures currently being investigated have a high priority in the Medical Division program and in the national program of the Commission. In these procedures any dust-born contaminants interfere with the counting efficiencies. Excessive room temperatures may produce instrumentation instability which is particularly serious in low level counting techniques. These studies are just beginning and will continue for many months. The division is using electrophoresis techniques, a series of studies on protein fractions. The techniques and equipment are temperature sensitive and with the breakdown of the protein fractions under excessive temperatures erratic and unrepeatable results may be obtained. These studies are just beginning and there is promise that they will become fundamental techniques in the cancer research program. Incubation temperatures are exceeded by summertime temperatures. Solvents, such as ether, exceed their boiling points at summertime temperatures and present explosive and fire hazards as well as problems in laboratory procedures. Certain photometric methods are erratic at summertime temperatures.

Offices on the second floor involve about 20 per cent of the second floor area in the laboratory building and it is thought desirable to air

condition this space since it is occupied by personnel directly responsible for research work. Constant movement of these people between the laboratories and non-air conditioned offices would result in disparate working conditions. The office areas on the first floor, comprising approximately 29 per cent of the first floor area to be conditioned, are occupied by the chairman and an administrative group of seven people. The chairman's office (160 square feet) is often used for staff discussions and meetings involving several people and also serves as a meeting place for visiting scientific and medical personnel. The administrative office has a gross floor area of 300 square feet with a net area of 183 square feet, or 28 square feet per person. This office is badly overcrowded with no apparent solution to the problem. Under the circumstances, air conditioning of these areas appears desirable.

OUTLINE SPECIFICATIONS

Site Preparation: Grading of the embankment behind the existing building will be necessary and most of the excavation may be used as fill to provide the proper floor grade.

A footing tile along the north wall of the existing building may require relocation to provide footing space for the proposed building. Also, the catch basin will require relocation.

Structural and Architectural: The proposed building will be of similar architecture to the laboratory wing. Expected dimension to be 30 feet wide by 7½ feet long with approximately 11'0" ceiling height.

Outside access to the building on the east end is from the existing patio and access on the west end is down concrete steps from the service road and parking lot.

Adequate reinforced footing shall be provided. Floors shall be reinforced concrete over crushed rock fill and moisture proof paper. Floor

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covering shall be class "C" asphalt tile 1/8 inch thick, color to be selected.

Exterior walls to be reinforced concrete and concrete block as noted on sketch CRMS Mad-660. Interior walls to be 8 inch thick concrete block with glass block as indicated on sketch. Existing building walls requiring remodeling to be gypsum board dry wall construction.

Roof and Superstructure: Roof shall be supported by bar joist resting on exterior walls. Decking to be steel covered with fiberglass insulation acoustic panels resting in aluminum T-bar providing ready access to services in attic space.

Roof alteration in existing building to be of wood frame construction with selvage edge mineral surface roofing similar to existing patient building construction.

Doors and Windows: Exterior doors to be metal. Interior doors connecting to existing building to be metal fire doors with appropriate safety hardware. The eight by twelve foot opening between large rooms to have cloth folding doors. Windows to have metal frames with standard weight glass. Reuse, if possible, doors in remodeling existing building. Any new interior doors that may be required to be of wood flush hollow core construction.

Mechanical: Plumbing will consist of sanitary drains, hot and cold water for laboratory sinks and equipment, and floor drains in two large rooms. Autoradiography laboratory and dark rooms will require rearrangement of existing sanitary waste lines and hot and cold water lines. Compressed air and gas lines may require relocating.

Sprinkler lines may require relocating in autoradiography rooms to conform with new partition arrangement.

Heating and air conditioning for the new as well as the remodeled and existing building may be provided from a central plant located on the concrete roof deck behind the laboratory building. Sketch No. Med-658 illustrates placement and location of equipment. The existing heating system in the laboratory building would remain unchanged, but heating must be provided for the new construction.

Distributions of cooling and heating, where necessary, is to be by circulating chilled and hot water. Each room would have one or more air handling units as required to maintain proper temperature, humidity and air circulation. Special design considerations will have to be given to areas where there are one or more fume hoods and special laboratory apparatus. Sketch No. Med-657a illustrates the general layout, rooms to be cooled and heated and the overall scope of work.

Electrical system is outlined in sketches ORINS Med-658 and Med-661 and should conform with National Fire Code, Volume Five - Electrical. Clinical Training Facilities power distribution center and power for air conditioning plant to be served from main switch located on back wall of laboratory wing. Lighting in two large rooms to be 20 to 30 foot candle intensity at table height and fixtures to be incandescent. Lighting in the patient waiting room to be at least 20 foot candle intensity at table level and fixtures to be recessed fluorescent troughs having three or four 40-watt tubes. Lighting in autoradiography work room to be fluorescent and in the dark room incandescent fixtures and dark room safe light fixtures are necessary. Power receptacles, 110 volt, are tentatively shown on drawing.

Painting: Exterior and interior painting to be done on proposed building. Interior painting as far as necessary to be done in autoradiography areas as well as any other areas of the existing building affected by the new construction.

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Estimate of Costs:

Site preparation:		
Grading	\$300	
Stems and footing drains	<u>300</u>	\$ 600
Building - 2,200 square feet @ \$18.00		\$39,600
Remodeling for Autoradiography rooms and air conditioning shelter		<u>2,000</u>
		\$42,200
Contingency - 5%		<u>2,110</u>
		\$44,310
Design and Engineering - 5%		<u>2,215</u>
		\$46,525
	TOTAL	<u>\$46,525</u>

Proposed Starting and Completion Dates:

Design:	
Start	August 15, 1955
Complete	October 1, 1955
Construction:	
Start	November 1, 1955
Complete	February 1, 1956

It is desirable that the Clinical Training Facilities be ready in time for the third advanced medical course which starts in March of 1956. Completion of construction by February 1 will allow time for setting up training equipment and other preparatory work.

Budget Designation:

The Institute's budget request for fiscal year 1956 has an item of \$30,000 for the Clinical Training Facilities addition. Funds amounting to \$25,000 were requested in project number 6027 A under subprogram 9600 and would bring the total amount of funds available for the entire project to \$55,000.

Method of Doing Work

It is desirable that the Atomic Energy Commission employ an architect-engineer firm to draw up detail plans and specifications for fixed price

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construction contract. Sketches in appendix may be used by the architect-engineer as a general guide.

Should the architect-engineer's construction cost estimate exceed the amount of fund available for this project, it is requested that alternate bids be taken with consideration being given to omitting the asphalt tile flooring, air handling units in the offices, interior painting or other work that could conveniently be done at some later time.

Contractural matters and building inspection of work in progress would be handled by the Oak Ridge Construction Office. The Institute personnel would do no part of the work other than preparation of this proposal with its accompanying preliminary plans and be available for consultation and suggestions during the design and construction periods.