

Proposed Extension to Building 4121. Scope of Scheme and Requirements

The paper RIEC/P.2 submitted on 5th November, 1959 outlined the need for Radiochemical laboratories for the Rutherford Laboratory. This formed part of a general proposal for the increase in accommodation and a general reorganisation of P.L.A. laboratory block. The scheme has now been discussed with the New Works Architects stationed at Tadley.

A layout, (Drawing number 412.16/HAK/7) has come to hand coupled with the preliminary estimate. The scheme submitted by the Architects is satisfactory in broad outline, and forms a good basis for final detailing. Precise information of our requirements as regards services etc., will be issued by us at the stage of obtaining a controlled final estimate.

2. Outline Specification

The functional purpose of the additional space is as follows:-

(1) Radio-chemistry Wing

Including changing and counting rooms etc., this amounts to 5,000sq.ft. This building will need special services such as fume cupboards etc., and ventilation plant. It is proposed to house the ventilation equipment in a plant room sited over the laboratories. Delay tanks will be needed for effluent disposal. General finish of the inside surfaces of walls etc., will be appropriate to this class of medium level activity laboratory.

A pneumatic sampling tube will run from this laboratory to the P.L.A. experimental area for rapid conveyance of short half life irradiated samples.

(2) Laboratory Block

A laboratory block of 6,200sq.ft. including space (2,300sq.ft.) for stores and machine spares is proposed. One laboratory will be for biophysics research but apart from this the laboratories are standard physics laboratories with no special features.

Allowance has been made in this block for a new calorifier room to serve the new development covered by this paper.

When the new stores become available the present Store will be used for a library and lecture room.

3. Counting Room

On the layout Drawing 412.16/HAK/7 a Counting Room is shown separate from the main extension. We now propose to increase the Counting Room area in the existing block by using the present Electronics Laboratory. Space will be provided in the new extension for the Electronics laboratory.

4. Experimental Area

It is proposed to increase the experimental area by 3,000sq.ft. This will be in the form of a light prefabricated structure. It is not clear yet how best to do this and more detailed plans will be submitted to the Committee later.

5. Workshop and Fitting Bay

The present Workshop is quite inadequate to meet the minimum requirements associated with the efficient Maintenance and operation of the Proton Linear Accelerator. It is proposed to increase the existing

available area by 2,000 square feet. At present the Workshop is seriously encroaching on the Fitting Bay; the only space available in the laboratory for the preliminary setting up and testing of large pieces of equipment before it is moved into its final position in the Experimental Area. Because of the Radiation Hazard this latter area is, of course, inaccessible during normal working hours.

6. Siting Proposals

Drawing 412.16/THAK/7 shows the proposed siting. Provision has been made for extension of the Laboratory block eastwards across the face of 412 in future. Apart from the functional requirements a definite attempt has been made to make the main approach to 412 more pleasant by taking ~~for instance~~ waste and rubbish dumps away and placing them in a less conspicuous area.

The ~~final~~ proposals will also contain a modification to the present Boulton-Paul and Terrapin Hutting to provide a suitable Main Entrance to Building 412.

7. Consultations where Safety criteria are involved

The only place in these new buildings that involve safety other than the normal level of precautions, is the Radio-chemistry wing.

This wing has been designed in consultation with Mr. G. N. Walton and Mr. J. G. Cunninghame of the Chemistry Division A.E.R.E., and Mr. Blythe of the Industrial Chemistry Group. We shall continue full consultation with both of the above parties during the detail planning stages.

We intend to carry out the modern practice in the physics laboratories of full electrical safety protection including knock-off switches isolating each laboratory.

At the next stage, the building layouts will be submitted to the Fire Precautions Committee for their approval.

8. Budget Provisions

In the N.I.R.N.S. estimate a total sum of £55,000 was included for the financial year 1960/61 and an additional sum of £60,000 for the year 1961/62, for buildings associated with the Proton Linear Accelerator. This appears to be a sound estimate of our rate of expenditure.

9. Completion Date

We would like the additions to be completed with all reasonable speed. A twelve to 15 months period for completion from the issue of the I.T.P. is the target to be aimed at and would fit in with the budget provisions. If our proposals are approved we will ask the architects to prepare a final contract estimate. This we would ask for by mid January 1960. If the I.T.P. is issued in February by the time detail drawings are complete and the contract placed building work would start about June 1960 and extend into the financial year 1961/62.

J.H. Paul

APPENDIX

Mr. G. N. Walton,
Building 220

Rutherford Laboratory

Mr. Burns has asked me to reply to your letter of 5th November with reference to the proposed medium level laboratory to be built by the National Institute.

As far as we can envisage, the requirements for solid and liquid waste disposal and decontamination of equipment can be absorbed into our present organisation without any addition of staff or accommodation, apart from a delay tank system. The question of general cleaning of the building is, however, a different matter. We are fully stretched at the present time and could not undertake this additional requirement without recruitment. An alternative would be to approach Mr. Bird to see whether he could re-organise his staff to cover this requirement since we estimate that for 4,000 sq.ft. the need would be $\frac{1}{2}$ man.

It is perhaps a little early to take up the delay tank system design, but our ideas, particularly when you mention in your copy of RIBC/P2 that there may be up to 10 curies of activity in use in the laboratories, are that a composite system should be considered. This consists of 2 x 500 gall. sump tanks below ground, connected to 2 x 1,000 gall, and 2 x 6,000 gall. tanks above ground and with a small pumphouse attached. The general plumbing in the building could be arranged accordingly.

H.J. BLYTHE

Industrial Chemistry Group,
Building 175.
Ext. 3133

17th November, 1959.

Estimate of cost.

An estimate of cost has been prepared but at this stage it is preliminary. The final cost obtained by a much more detailed analysis will be made later.

The cost of the main laboratory block including the Radio-chemistry suite is £100,000

This includes total cost of buildings, services in the buildings, and roads and services up to the site.

Cost of complete installation of delay tank system including a pumphouse and all necessary services £10,000

The cost of the new Experimental Area, modifications inside Building 412 consequent upon the additions including services external and internal £20,000

Total £130,000

No contingencies have been added to these figures.