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Mr. H. Hadley,
Building R.1

Electrical Heating in Director's Suite

With reference to our recent discussion with Mr. Bowles re the removal of the hot water radiators and installation of electrical convector heaters in the Director's suite I should like to clarify the events leading up to this move and answer some of the current queries about its cost and effectiveness.

The problem was originally raised back in the summer by Mr. Mullet. He requested the installation of electric clock points in the Director's suite and I visited him on this account. In making general complaints re S.W.O.'s original installation he raised the question of his heating - its inadequacy during the winter and the continued heat source in the summer despite the fact that it was turned off. I was staggered to find that tubular heaters had been installed by Construction Group in the heating panels, connected into the back of nearby 5A sockets with no means of isolation. On investigation it turned out that during the previous winter the heating system had been found to be completely inadequate. The hot water radiators were fed via small bore pipes cast into the concrete and the addition of the tubular heaters was the result of investigation at that time by S.W.O., Construction Group and I believe Mr. Goode also. The general position seemed to be that all possible had been done with respect to improving the hot-water system.

I considered at the time that in a scientific establishment such as ours it was a disgrace that we could not effectively heat the Director's suite. The suggestion was therefore placed to Mr. Goode and subsequently to Mr. Mullet that electrical heating with thermostatic control should be installed. Approval was given and a 'green' placed on me by Mr. Goode. The whole electrical installation to the Director's suite was modified and several clock points added, the runs being installed as unobtrusively as possible in Pyrotenax (all the original installation was in conduit cast in the concrete). The cost for the work, most of which was carried out at a week-end, was as follows:-

1)	Read & Partners labour and materials	..	£295
2)	Fuseboard		19
3)	Ecko heaters (11 off)		139
4)	Sheet steel panels (Revel Eng. via Supply Group)		119
5)	Removal of hot water radiators		<u>25</u>
	<u>Total</u>		<u>£597</u>

The high labour cost is due to the weekend working. In passing it seems incredible that the sheet steel panels for mounting the heaters on cost nearly as much as the heaters themselves!

With regard to the efficiency of the installation we have recorded the temperature in the Director's office over the last week, since making arrangements that the heating should be left on all night. The records show that the heaters are only on for less than $\frac{1}{3}$ of the time even when the temperature is very low outside. By observation we have also noted that the Director is

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a "fresh air fiend". For instance, on the second day that we took readings, despite an outside temperature of 39°F he opened three windows wide at 10.40a.m. closing them again at 4.10p.m. Even under these conditions the minimum office temperature was approx. 65°F.

The only loose convector heater we could find in the Director's suite was in Miss Gell's office. The reason given for this was that she could not stand the heat from the heater we installed and she therefore kept it switched off and used the portable 1 Kw one instead.

We have calculated the annual running costs of the complete installation based on the recordings taken and the result is as follows:-

Installed heating capacity	= 21.5Kw.
Diversity factor	= 0.32 (Under very cold conditions)
Total number of units/year based on 3 months normal load and a further 6 months at $\frac{1}{2}$ normal load	= 21,500Kwh.
Running cost @ 0.6d/unit	= £54 0s. 0d.
Max. demand charge @ £6/Kw.M.D. (21.5x6x.32)	= £42 0s. 0d.
Gross annual cost	= <u>£96 0s. 0d.</u>

Under the circumstances given to us I am still convinced that the installation is a good one and is more than adequate if properly used. The thermostats, if left alone, will control the temperature with a room differential of approx. 5°F. I do not consider the running costs to be excessive, bearing in mind that this is the Director's suite we are dealing with.

R. Tolcher
Electrical Services

18th December, 1962
Building R.1 Link

Copies to:- Mr. P. Bowles
Mr. G. Simmonds
Mr. J. A. Goode

**REQUISITION ON PROTON SYNCHROTRON SERVICES
ORIGINAL/SUPPLEMENTARY TO****E 7330**

PROJECT No:

127/15/6

TO P.S.S. RECORDS OFFICE (Green & yellow copies)

FROM

W. J. P. 120.

Grade

III

Division

C.E.G.

Tel. No.

237

Rm. No.

21

Rm. No.

175

AUTHORISED BY

J. A. G. 005

Grade

III

Financial

Signatory Power

1. 7.

Signed

f

Date

21 June 1962**SERVICES REQUIRED****DETAILS OF WORK**

(Required by _____)

WATERRaw
Demineralised
Volume**AIR**Pressure
Vol.**GAS**

No. of points

ELECTRICAL

Phase

Voltage

Current

Please arrange to have an electrical
heating system installed in the
direction suite, building 21, 2nd floor

P.P.B.**DRAWINGS**

Standard No.

Specific

Sketch

RP 39

FUTURE REQUIREMENTS —Details of possible future modifications or additions that
may be required which could have a bearing on this work.





