

RESEARCH COMMITTEE ON MINIMUM STANDARDS OF ACCOMMODATION.

MINUTES OF THE THIRD MEETING OF THE HEATING AND COOLING SUB-COMMITTEE, HELD IN THE BOARD ROOM OF THE COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH ON WEDNESDAY, 21st JANUARY, 1948 at 9 a.m.

Present:

- Dr. A.J.A. Roux Chairman.
- Mr. A.M. Mehl S.A. Bureau of Standards.
- Mr. J. Swardt S.A. Bureau of Standards.
- Dr. Frack Department of Health.
- Mr. G.M. Hussey Institute of S.A. Architects.
- Mr. S. Mossop National Physical Laboratory.
- Mr. C.L. Scott Hon. Consultant to C.S.I.R. on Solid Fuel.

In attendance:

Miss S. de Beer.

Apology:

Mr. P.H. Connell (Organising Secretary).

1. The Chairman declared the meeting open, and welcomed Dr. Frack, who had taken Dr. Meaker's place as the Department of Health's representative on the Sub-Committee. He also welcomed Mr. Mehl, who would in future represent the Bureau of Standards on all the Sub-Committees. Mr. Swardt would represent the Bureau from the technical aspect on Sub-Committees 5 and 7 and Mr. Du Toit on Sub-Committees 6 and 8.

2. CONFIRMATION OF MINUTES.

The Chairman asked that the Minutes of the previous meeting be slightly amended, as follows:-

- 2/a. P. 2, para. 3 (b) Research Work to read:

"The Chairman gave an outline of the Research Work which was being carried out overseas, and indicated what the National Building Research Institute was doing in that connection"

This amendment was agreed upon and the Minutes were confirmed.

3. TERMS OF REFERENCE.

At the recent meeting of the Main Committee, the Terms of Reference had been ratified to read as follows:-

"To serve as a joint sub-committee of the Research Committee on Minimum Standards of Accommodation and the South African Bureau of Standards".

"To examine:

- (1) The conventional types of dwelling in use in South Africa with special reference to the factors of insulation of the enclosing walls, roof and floor;

(2) the/.....

- (2) the provision of heat services;
- (3) the effects of solar radiation and any other factors affecting the heating and cooling of dwellings in South Africa".

"To discover where the conventional types of dwelling fall short in these respects and to make recommendations for the improvement of standards".

"To seek to define the minimum provision for heating and cooling needed to conform with the requirements of health and comfort in various parts of the Union".

"To prepare a report on the Sub-Committee's findings for submission to the Main Committee".

- 3/a. Comparing these with the previous Terms of Reference as set out in the minutes, the Sub-Committee agreed after discussion that Item (c) on page 2 of the Minutes had been omitted in the new Terms of Reference, and agreed that the Organising Secretary should suggest its inclusion to the Main Committee.

4. PROGRESS REPORT.

4/a. Legislation.

In view of Mr. Connell's absence, it was agreed to leave discussion of this work over till the next meeting.

4/b. Research Work.

The Chairman told the Sub-Committee that this report was not quite complete. He had changed his scheme of work in view of recent decisions, and had decided not to give a survey of the research work done, but to give a report indicating from the research work the remedial measures which are necessary contributors to comfort.

4/c. Physiological Optimum.

The Chairman, referring to Dr. Meaker's report, which had been circulated to members prior to the meeting, moved that a letter be written to Dr. Meaker, thanking him for his extremely valuable and painstaking job of work. This was agreed upon.

A long discussion ensued as to the best way of proceeding with the study with Dr. Meaker's report as basis. It was generally felt that the Sub-Committee, investigating existing conditions, should point out where these fell short of the standards generally agreed upon as desirable. The Chairman said that it was known that the human body loses heat through convection, evaporation and radiation; if one could establish between what limits heat must be lost to maintain a comfortable condition to work out roughly what the surface temperature of walls, the air temperature and the relative humidity should be for comfort. It would then be the Sub-Committee's task to say what should be done to maintain those temperatures and humidity.

- 4/c/1 It was eventually agreed to ask Dr. Frack to take over Dr. Meaker's report, and using this as a basis and bearing in mind the points which had been brought out in the discussion, to see whether it was possible to make deductions as to what the aims of the Committee should be. From those findings he should point out where

present day practice falls short of the desired result, looking at the question always from a practical standpoint.

Dr. Frack agreed to do this.

The meeting adjourned for tea at 10.15 a.m.

4/d. Mr. Hussey's Report on a Survey of Existing Practices.

Mr. Hussey told the meeting that he had recently returned from visiting various towns in different regions of the country, where he had tried to translate into actual house visiting conditions the mass of information which he had collected since the last meeting. He had immediately found himself up against the difficulty of having no fixed standard to use as a basis for comparison. His criticisms therefore were of necessity uneven, and his report simply emphasised bad practices. He suggested that this might be considered as an interim report, and that he could finish it for the next meeting. After that when some standard had been arrived at as the desirable degree of comfort to be aimed at, he could go further with his investigation.

4/d/1 Mr. Scott said that he felt Mr. Hussey's report criticising existing practices was exactly what was needed at the moment, and this was agreed upon by the Sub-Committee.

4/e Mr. Mossop's Report.

The Chairman said that he very much regretted that extreme pressure of work had prevented him from being able to discuss Mr. Mossop's report with him as had been agreed upon at the last meeting, but that he had been through most of it, and wished to congratulate Mr. Mossop and thank him for the excellent job he had done. He would have the report roneed for the next meeting.

Mr. Mossop said that in regard to overall heat transmission coefficients, the A.S.H.V.E. Guide had been the only place where he had found figures, and these were based on constructions seldom or never used in South Africa at present, but which might become common in the future.

4/e/1 The Chairman said that this question had arisen at one of the other meetings, and that it had been agreed that for the interim report, committees should confine themselves to materials in use or available here. Later they would go further than this and include those used elsewhere as well. It was agreed that Mr. Mossop should consult Mr. Connell on the question of construction systems and materials.

4/e/2 Mr. Mossop asked about copyright laws in South Africa and Mr. Hussey said that these were extremely strict. It was agreed that Miss De Beer should contact the Government Printer in this regard.

4/f Study of the various types of Heating Systems.

4/f/1 Mr. Swardt said that he had finished his report for space heating, but would like to go further and add an appendix on other systems before the next meeting. Mr. Scott suggested that he also be asked to add something on the use of Electricity as an auxiliary, and this was agreed upon.

4/f/2 The Chairman thank Mr. Scott for the extremely interesting report he had prepared, and Mr. Scott said that he wished to

apologise for having dealt with his subject in such an elementary way.

The meeting briefly discussed the three "hard questions" in Mr. Scott's report, viz: "To what extent does the cost of fuel so reduce the availability of hot water to those who use this method, as to affect hygiene, health, comfort and efficiency?" : "Does the practice of heating water solely in a vessel on the top of a stove limit its availability as to affect hygiene, health and general well being?" : "Where a complete hot water system can be afforded, should not a limit in size be recommended for storage tanks: should not these always be insulated; should not a 'Combined' appliance be recommended; - where the hot water needs are 'average' say 80 gallons a day at an average of 150°F?".

4/f/3 It was agreed that Mr. Scott should be asked to rephrase these three hard questions in the form of a critique.

5. WORK PROGRAMME.

5/a. The Chairman, in view of the fact that the Preliminary Report had to be out by the end of March, suggested the following programme: Each member should get out his portion of the report for the following meeting, to be held in the middle of February. These should be discussed at the February meeting, and the National Building Research Institute should be responsible for getting the separate papers into the form of a draft preliminary report for a meeting at the beginning of March. At this meeting, the draft should be discussed and amended, and one more meeting should be held at the end of March to finally approve the report before its submission to the Main Committee, and a final report should be brought out to go to the Main Committee at the end of March. The Chairman also suggested that the Ventilation and the Heating and Cooling Sub-Committees should amalgamate for the next three meetings. The Chairman's proposals were agreed to.

5/b. It was further agreed that the six different reports making up this Interim Report should each consist in the first place of a critical statement, indicating the weaknesses in the present systems and, where possible, making constructive suggestions.

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| 5/b/1 | Legislation. | To be dealt with by Mr. Connell. |
| 5/b/2 | Research Work. | To indicate remedial action where this could be undertaken. |
| 5/b/3 | Physiological Optimum. | This report would give what was aimed at, while stating that present-day knowledge made it very difficult to lay down any fast standard. |
| 5/b/4 | Survey of Existing Standards. | Would take the form of a criticism of these. |
| 5/b/5 | For the preliminary report | Mr. Mossop would abstract the data on overall heat transmission coefficients, using construction methods and materials available or in use in South Africa. |
| 5/b/6 | Mr. Swardt and Mr. Scott | would criticise existing practices and expose weaknesses. |

General/.....

6. GENERAL.

Mr. Scott proposed that Mr. Connell as Organising Secretary should go carefully through the work being undertaken by all the sub-committees, and make out a statement showing where there was any overlapping of work.

This was agreed upon as necessary.

The next meeting was fixed for Friday, 13th February at 9 a.m. and the meeting closed at 11.25 a.m.

Confirmed,

CHAIRMAN.

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