Proceedings of The Institute of Acoustics

Masking Sound : Current Research

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In the late 1950's and early 1960's the concept of Burolandschaft emerged. It was based on the assumption that an office is primarily an information processing centre and that office architecture or layout can affect the efficiency of that processing. Thus it was envisaged that the office environment should be structured around the processes which are accomplished within it. The idea either in the form of 'landscaped', 'open-plan', or 'large-scale offices seemed to catch the imagination of architects and interior designers alike and a great demand for the new type of office layout was created based on rumoured advantages rather than results of detailed research.

Considering the ample evidence now available that the physical environment affects human behaviour and perception one would except this trend to have been accompanied by a great deal of research centered upon the development of rational theories relating behaviour to office design. The change in requirements has, however, been so rapid that such a behavioural science is still in its infancy. From the point of view of the designer, a set of rules is required concerning human behaviour which he can apply to his design concepts. Such rules can only be derived once adequate data has been built up about the human

factor, and it is for this purpose that the current study has been undertaken.

Since this study has been primarily concerned with low level (60 dB(A)), background noise, the physiological effects such as metabolism, skin response, rate of breathing and similar indicators have not been investigated.

The effects of 4 different background noise conditions upon performance in adding and checking tasks have been measured under laboratory conditions using 40 undergraduate and postgraduate students as subjects. The Fan Noise (60 dB(A)) by itself did not produce any difference in output. However, a highly significant decrement ($p = <.0005$) in performance was recorded in respect of an adding test under the Speech (60 dB(A)) compared with that obtained under the Quiet condition (35 dB(A)). This decrement was removed when Fan Noise was added to the Speech which suggested that the distractive effects caused by the Speech has been reduced by the masking effect of the Fan Noise.

Speech was further examined by comparing subjects performance under three different Speech passages, with varying 'interest factor'. It was found that only Speech with a high level of interest caused distraction sufficient to reduce efficiency

An optimum design formasking noise has been achieved using a 'speech shaped spectrum' at a sound pressure level 4 dB(A) below that of speech level.