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PREPRINTS

RECENT ADVANCES IN BRITISH AND INTERNATIONAL STANDARDISATION IN BUILDING ACOUSTICS

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WEDNESDAY 26 NOVEMBER 1980

BRITISH GYPSUM LTD.
LOUGHBOROUGH

INSTITUTE OF ACOUSTICS

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RECENT ADVANCES IN BRITISH AND INTERNATIONAL STANDARDISATION IN BUILDING ACOUSTICS

British Gypsum Ltd.,
Loughborough.

Wednesday 26 November 1980

Meeting Organiser:

Mr. C. WALKER, FIOA
British Gypsum Ltd.

PROGRAMME

Chairman : C. Walker FIOA

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0945	REGISTRATION AND COFFEE	
1000	General Introduction and Background C. WALKER	
1030	Revision of ISO R 354. Measurement of Absorption Coefficients in a Reverberation Room P.E. JONES	1
1100	ISO DIS 717 and BS 5821: 1980, Rating of Sound Insulation in Buildings and of Building Elements L.C. FOTHERGILL	3
1130	Revision of ISO 140/II Statement of Precision Requirements P. ROYLE	5
1200	Discussion	
1230	LUNCH	
1330	A Review of the Methods used for Quick Testing of Sound Insulation. H.G. LEVENTHALL	7
1400	A Brief Review of the Work carried out in ISO TC 43 SC 2 on the subject of 'Measurement of Plumbing Noise' C. WALKER	11
1430	ISO DP 140/Part 9. "Laboratory Measurement of Room to Room Airborne Sound Insulation of a Suspended Ceiling with a Plenum above it. C. WALKER	13
1500	List of Resolutions and Statement of Results of ISO TC 43 SC 2 Meeting in Budapest October 1980 given in papers 312E and N313.	
1530	TEA AND DISCUSSION	
1600	Tour of the East Leake Acoustics Laboratory and Fire Testing Laboratory	
1630	MEETING CLOSES	

Proceedings of The Institute of Acoustics

REVISION OF ISO R 354
MEASUREMENT OF ABSORPTION COEFFICIENTS IN A REVERBERATION ROOM

P.E. JONES

BRITISH GYPSUM

The revision of ISO R 354 began in 1973 when, at the Budapest meeting of ISO TC 43 SC 2, a resolution was passed that member body comments should be sought with an end to converting the document to a full international standard. These comments were considered at the 1976 Paris meeting of SC 2 and a decision was made that a Working Group should be formed to produce a working draft document. Following four Working Group meetings the sixth working draft was accepted as a draft proposal. This draft proposal was twice revised following a request for member body comments which were considered by the Working Group in October 1980. The subsequent third draft proposal is now to be circulated to member bodies for combined voting, which if positive, will result in its acceptance as a Draft International Standard.

The brief of the Working Group in producing the working drafts was to improve the recommendation (R 354) in the light of current knowledge but not to change the basis of the measurement techniques. Thus the current draft proposal is not dissimilar to the original document but contains a number of detail changes which will hopefully help in the ultimate aim to increase the repeatability and reproducibility of the test method.

The main areas of change have been:

1) Diffusion of Sound Field

A method for checking diffusivity has been given.

2) Temperature and Humidity Conditions

Limits have been set for the operation of the reverberation room.

3) Generation of Sound Field

Warble tones have been eliminated.

More than one source position to be used during test.

Source operation time prior to cut off defined.

Broad band sources are allowed subject to certain conditions.

4) Measurement of Reverberation Time

Early decays may be measured subject to a minimum range of 20 dB. A maximum curvature specification is given which if exceeded will result in the rejection of a decay curve. Minimum numbers of measurements are specified for each frequency band. Corner microphone positions are no longer recommended. Subject to a number of conditions real time analysis of reverberation times is allowed.

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5) Precision of Test Method

Definitions of repeatability and reproducibility (to ISO 5725) are given. Reproducibility figures are given, which it is expected will be met using current practice. No figures are given for repeatability but a method of rough assessment is given in an annex.

Amongst the other topics which were discussed the following are thought most important:

A) Mounting of Specimens

Little change was made from the statement in R 354 but proposals for standardisation of mountings will be considered for a future revision.

B) Calculation of Equivalent Absorption Area

The Sabine formula has been retained. Consideration of the Eyring formula resulted in the conclusion that its advantages were outweighed by its complexity.