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Ventilation Noise Reduction San Jose State College Speech-Drama Building Addition

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Louis Bourget

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16. ABSTRACT

This report documents the successful attenuation of some severe ventilation noise problems at the San Jose State College Speech-Drama Building Addition. The original report made certain corrective recommendations along with predicted amounts of noise reduction that could reasonably be expected if the recommendations were adopted.

The predicted noise reduction estimates were actually surpassed because of the collective efforts by Division of Architecture personnel:

Vern W. Thornburg Orvel Johnson
Martin Kolodzey Direct Construction Crew
John S. Moore

Complaints are usually well documented, but their successful correction can easily go unnoticed under the pressure of new work at hand. Therefore, this brief report is offered for its informational value.

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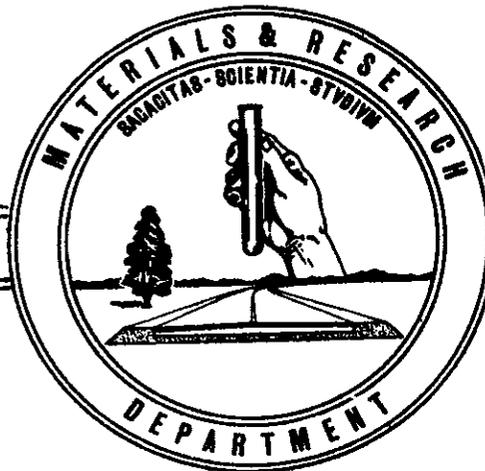
VENTILATION NOISE REDUCTION
SAN JOSE STATE COLLEGE
SPEECH-DRAMA BUILDING ADDITION

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State of California
Department of Public Works
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Materials and Research Department

November 1963

Your: AD14W09C-11

Our: W. O. S-61255

Mr. Carl C. McElvy
State Architect
Division of Architecture
Sacramento, California

Attention: Mr. Arthur F. Dudman
Mr. O. E. Anderson
Mr. C. L. Iverson

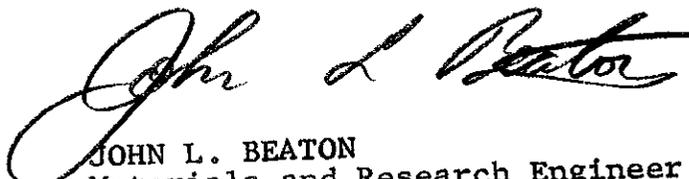
Gentlemen:

Submitted as a supplement to an earlier sound study,
"San Jose State College Sound Survey of Ventilation System Noise
in Speech-Drama Building Addition", dated August 9, 1961, is a
report of:

VENTILATION NOISE REDUCTION
SAN JOSE STATE COLLEGE
SPEECH-DRAMA BUILDING ADDITION

Study by Structural Materials Section
Under general direction of E. F. Nordlin
Measurements and report by Louis Bourget

Very truly yours,


JOHN L. BEATON
Materials and Research Engineer

LB:mw

INTRODUCTION

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DISCUSSION

The before and after noise levels in decibels A scale (dbA) are presented along with the noise reduction achieved as compared to the original estimate in the following table:

<u>LOCATION</u>	<u>dbA BEFORE TREATMENT</u>	<u>dbA AFTER TREATMENT</u>	<u>dbA NOISE REDUCTION</u>	<u>ORIGINAL ESTIMATE</u>	
Fan Room--High Pressure Area	99-100	89-91	15	12 to 15	
Fan Room--Low Pressure Area	92-94	At Corner 76-78	16	7 to 10	
		Near Walls 73-75	18		
Inside Return Air Shaft Near Door	89-90	71-72	18	8 to 11	
Room 224 Storage Below Fan Room	57-59	44-46	13	8 to 10	
Room 226 Acting and Speech Practice	52-54	40-42	12	8 to 9	
Room 223 Across Hall from 224	51-54	38-41	13	8 to 9	
Hearing Test Rooms:	262B	33-36	21-24	12	6 to 8
	256	31-33	21-23	10	6 to 8

There are some remaining adjustments that should be given final attention, such as a reduction of the excessive air delivery in Rooms 231, 233, and some other rooms in the east sector along the outer wall of the building. This excessive air delivery is causing abnormal and unnecessary flutter and hiss noise at the room diffuser outlets, but should be readily correctible. When this has been done, the job will be satisfactorily completed.

The question may occur as to whether the change of the overloaded fans, or the acoustical treatment, contributed the most benefit to the noise reduction accomplishment. Both were extremely important. For example, on the low pressure side of the fan room the new fans dropped the noise by 8 dbA while the acoustical pads dropped the noise another 8 dbA at the corner near the electric panels and 10 dbA near the side wall for a total drop of 16 to 18 dbA.

In the classrooms the new fans account for about 60% of the observed noise reduction and the acoustical treatment about 40%, except for odd numbered classrooms in the east sector along the outer wall which still have excessive air delivery, as already noted.

The former classroom of most complaint, Room 226 -- Acting and Speech Practice, is now only 2 dbA louder with the fans on than it is with the fans turned off. Originally this room was 14 dbA noisier with the fans turned on. The Division of Architecture and the personnel directly involved will no doubt be pleased to know the outcome of this successful noise reduction program.