HVAC SYSTEMS SOUND AND VIBRATION PROCEDURAL GUIDE

SHEET METAL AND AIR CONDITIONING CONTRACTORS'
NATIONAL ASSOCIATION, INC.
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FIRST EDITION – OCTOBER, 2013

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FOREWORD

We humans have always valued places of quiet. With the advent of Green Building Rating Systems, noise pollution has become a concern and sound level requirements have been added to building rating systems. Now, the new and emerging building codes are including requirements that mandate specific levels of quiet—spaces with allowable upper limits of sound and vibration (S&V).

Codes require measurement and verification for proof of compliance. This procedural guide details methods and processes that, when followed, will provide repeatable measurement and verification of sound and vibration levels. It is intended to be used by trained technicians.

Trained and experienced testing, adjusting, and balancing (TAB) technicians have many of the requisite skill sets to conduct S&V testing. Since TAB work is often one of the last steps in the completion of a building, that same timeframe may represent an opportune time to also conduct S&V measurement and verification.

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CHAPTER 1

INTRODUCTION

1.1 SCOPE

The scope of this Procedural Guide includes the basic elements that are required to conduct and report the results of Sound and Vibration Testing for building HVAC systems.

1.2 PURPOSE

This guide is intended for trained Sound and Vibration (S&V) Supervisors and Technicians to assure that correct procedures are used when performing S&V testing. This guide may be used in the initial review of a project S&V testing requirements or as an on-site reference document that can be used during the testing process.

A trained S&V Supervisor/Technician should be familiar with equipment and structures used in buildings and design approaches used to address sound and vibration isolation and mitigation of their transmission.

A trained S&V Supervisor/Technician should be versed in the use, care, adjustment, and application of instrumentation used for S&V testing.

A trained S&V Supervisor/Technician should be capable of evaluating building conditions and equipment to determine the potential source of a sound or vibration problem.

This guide is not intended to be used to design corrections for problems found during S&V testing. Designing S&V solutions is the responsibility of the building designers and their acoustical consultants using the S&V test results as a guide.

1.3 HOW TO USE THIS GUIDE

The scope of S&V testing is as varied as the types of buildings in which it is performed, the problems it is intended to identify and the different specifications requiring it. This guide provides minimum testing requirements and procedures that will result in repeatable and accurate measurements. This guide is divided into four major parts,

- initial examination of documents,
- inspection of installation,
- sound level testing, and
- vibration level testing.

Provided in the appendices are a sample specification checklists and definitions along with references from other SMACNA manuals.