UNDERSTANDING NON-STANDARD CERTIFICATION OUTPUT

There are periodically equipment applications that do not fit well into the automated seismic computation programs developed by Kinetics Noise Control. This holds true for others that perform this service as well. This section of the manual indicates the minimum material that should be expected to be included in the output document, from Kinetics Noise Control or from any other reputable organization.

This data comprises those items that must be verified by the end user to ensure that the appropriate information was provided, was understood and was used. Because of the number of links in the chain, miscommunication in this area is common and failure to do validate this data can make the certification invalid.

It also provides input that should be used by the equipment manufacturer and the building structural engineer to ensure that the durability of the equipment and locally, of the structure, is adequate to withstand the seismic inputs.

Echoed Input Data

First there should be a list of assumed inputs. Overall, there should be a listing of the project, any reference order numbers to which the certification applies and the date the calculation was performed. In addition, global parameters like the Code used, the ground acceleration coefficient, the soil type, any appropriate fault factors and Importance factors should be listed. If there are over-riding design accelerations included in the spec, these should be defined as well.

This data is necessary to communicate to all concerned which code was applied and what factors were either provided to the individual doing the calculation or were assumed by them. The date should be included as changes are sometimes required in the field and calculations need to be re-run. If there are multiple calculations that end up in a job file, the date offers a historical link as to which calculation is valid.

Moving on to the application specific information, there should be a listing of the Equipment Importance factor (if different from the structure), assumed or dictated equipment elevation data, equipment type (by definition), mounting parameters and overall geometric and weight data. The parameters used here can significantly impact the performance of the system and frequently are not fully disclosed to the individual performing the analysis. Items such as CG locations, elevations in the structure, life-safety assumptions, and even weights are often not clear. Even when provided, this information often comes in piecemeal via phone, fax or separate email correspondence. Because the individual has no direct control over the accuracy of the input information, it is critical that it be echoed back to ensure that the data applied makes sense to the user.

KINETICS Noise Control
DUBLIN, OHIO, USA • MISSISSAUGA, ONTARIO, CANADA

Toll Free (USA only): 800-959-1229
International: 614-889-0480
Fax: 614-889-0540
World Wide Web: www.kineticsnoise.com
Email: sales@kineticsnoise.com

Computed Output Information

The minimum output material that must be offered to the end user as a result of the computation is the following:

1) The computed Seismic load (in G's) appropriate for the particular piece of equipment in question.
2) A selection of a restraint device (or devices) including model, size, quantity, general arrangement and specific locations.
3) The maximum expected horizontal and vertical forces at those devices resulting from the application of a "worst case" seismic load.
4) Confirmation that the restraint device is adequate in size to withstand the loads.
5) If anchored to concrete and an oversized baseplate is required, the size of that baseplate.
6) Minimum size and embedment depth of anchors for concrete applications.
7) If required, identification of anchor type (Wedge or Undercut).
8) If bolted to steel, the minimum acceptable size of attachment bolts.
9) If welded to steel, the minimum size of welds required to make the connection.
10) An installation sketch or schematic orienting the equipment.

A Seismic Calculation Assumptions and Disclaimer Document

This critical document spells out in detail, what is and what is not addressed by the certification. In addition, it indicates what assumptions may have been made in putting the analysis together. Lastly, it indicates to whom this information should be forwarded to ensure that all facets relating to the acceptability of the installation are addressed.

Stamped or Sealed Coversheet

A dated coversheet listing the certification document by Tag and indicating the name of the individual who performed the certification along with their Professional Engineering seal must also be included. If there is only one calculation, in lieu of a coversheet, the certification document itself can include this information.

KINETICS Noise Control
DUBLIN, OHIO, USA • MISSISSAUGA, ONTARIO, CANADA
Toll Free (USA only): 800-959-1229
International: 614-889-0480
Fax: 614-889-0540
World Wide Web: www.kineticsnoise.com
Email: sales@kineticsnoise.com