

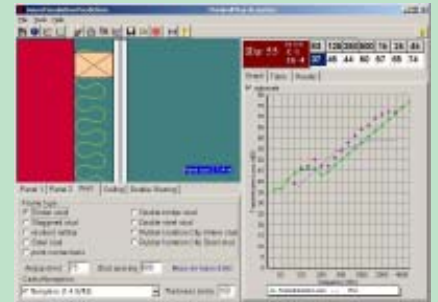
Navcon Engineering Network, a California Corporation provides **products & services** synergistic to the field of noise & vibration, measurement, analysis & control. Following is a brief summary:

- **Noise & Vibration Consulting Services**
 - Architectural Acoustics
 - Environmental Noise Modeling
 - Sound Pressure / Sound Power Testing
 - Modal Testing & FE Model Verification
 - Materials Testing (Modulus & Loss Factor)
 - Scanning & Fiber Optic Laser Vibrometry
 - Design & Manufacture of Discrete & Surface Damping Treatments
- **Seminars & Workshops**
 - Hands-On Modal Testing & Analysis
 - Acoustic Intensity Testing
 - Environmental Noise Testing & Modeling
 - DSP & Software Product Training

- **Software Product Distribution**
 - **SoundPLAN** (Environmental Noise)
 - **INSUL** (STC Estimation)
 - **FEMTools** (Test/Analysis Correlation)
 - **NMEWS** (Noise Monitoring Early Warning System • For Industrial Facilities)
 - **ME'Scope** (Modal Analysis Software)
 - **Smart Office** (Modal Analysis Software)
 - **SRS** (Shock Response Spectra)
 - **AIMap** (Acoustic Intensity Mapping)
 - **RRIT** (Roving Response Impact Testing)
 - **MRIT** (Multiple Ref. Impact Testing)
 - **SignalCalc** (VXI Data Acquisition)
- **Hardware Product Distribution**
 - **APS Dynamics** Shaker & Amplifier
 - **Labworks** (Amplifier)
 - **Navcon** (Acoustic Screening Chamber)

INSUL®

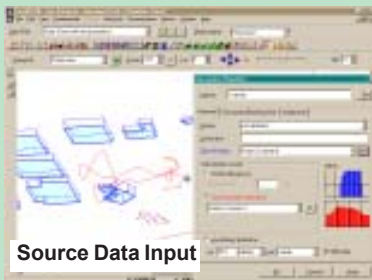
- Sound Insulation Prediction Software (Wall, Floor, Ceiling & Window Analysis)
- Estimate Transmission Loss (TL), Sound Transmission Class (STC) & OITC
- Quick Evaluation of new Materials & Systems.
- Database with 40+ general building materials
- Absorptive facing for noise enclosure



SoundPLAN®

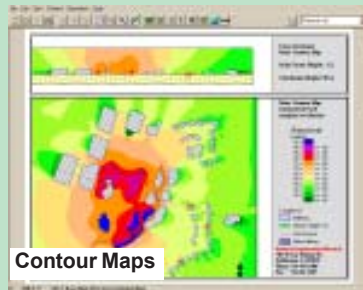
30+ Noise Standards to fit your Project:

- Industrial, Construction & Entertainment Noise
 - 13 Standards incl. ISO 9613, Nordic, VDI
- Road & Railroad Noise Models
 - 19 Standards incl. FHWA, RLS, Schall03, ...
- Indoor Factory Noise Models
 - Indoor, Indoor to Outdoor based upon VDI
- Assessments (CNEL, L_{DN} , L_{eq} , L_d , L_n , L_{user} , ...)



Source Data Input

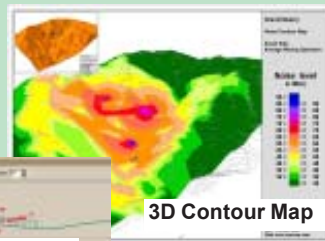
- Full 32 bit Windows Integration & Network Computing



Contour Maps

Noise Control Planning & Optimization Tools

- Site Configuration
- Silencers
- Barrier Optimization
- Louvers
- Doors & Windows
- Lagging
- Room Treatments
- Others
- Enclosures



3D Contour Map

Reporting, Data Presenting & Color Mapping

- 2D & 3D Model Geometry Maps
- Difference & Conflict Maps
- 2D & 3D Noise Contour Maps
- Facade Noise Maps
- Cross Sectional Contour Maps
- Digital Movies (AVI)
- Graphic Export Tools
- Predicted & Measured Data Maps
- Data Export to Excel



Wall Design

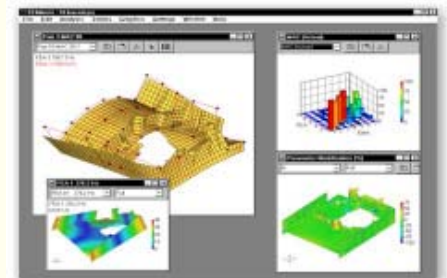
Simple & Quick Model Generation

- Import Data via DXF, ArcView File, ASCII, ...
- On-screen Digitization using Bitmaps & Digitizer Tablets
- Source, TL, Absorption & Attenuation Libraries

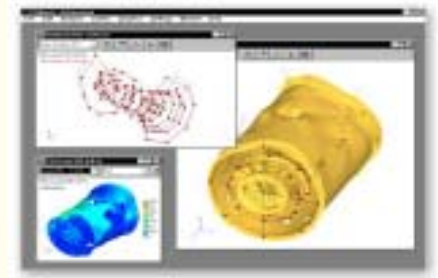
Expert System

FEMtools™

- Multi-functional CAE software program
- FE Solver for Static and Dynamic Analysis
- Correlation Analysis (Shape Correlation, Pretest Analysis, Error Localization)



- Sensitivity Analysis for a wide range of responses and parameters.
- Model Updating - Extends FEMtools Sensitivity Analysis with automated finite element model updating and harmonic force identification



- FEMtools is used by FEA analysts, test engineers, application developers and integrators, engineering consultants, academic researchers, and R&D engineers. For each of these users profiles, FEMtools offers specific benefits.

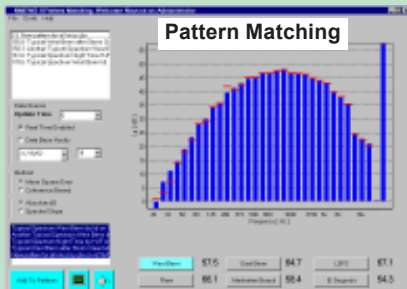
APS Dynamics Modal Shaker & Amplifier

- ELECTRO-SEIS® Long Stroke Shakers
- Air Bearing Horizontal Shakers
- Portable Shaker
- DUAL-MODE Power Amplifier



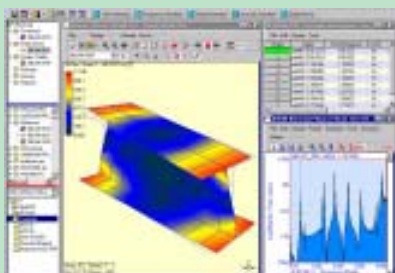
Noise Monitoring & Early Warning System

- Multi-Channel Data Acquisition (1/3 Oct., NB)
- Intranet Data Distribution
- Early Warning & Alarm System
- Noise Pattern Matching
- Audible Feedback
- Tonal Analysis
- Data-basing Weather Data, Noise Descriptors, Statistical Data, Audio Data, Noise Pattern

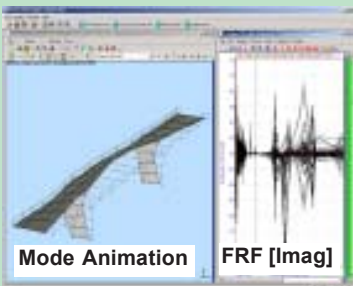


ME'Scope

- Modal Analysis Software
- Interactive drawing of 3D structure models
- Interactive animated display of shapes (time/frequency domain data or from shape table)
- Animated Operation Deflection Shapes
- Import data from most popular data acquisition systems, analyzers

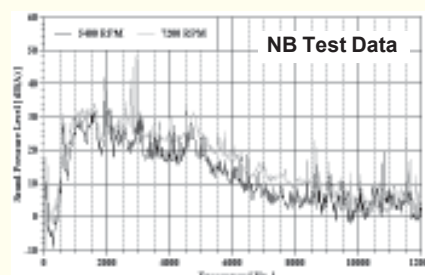


- FFT, Inverse FFT, Notch and Band Windowing
- Acoustic Intensity, SPL, Sound Power, P-I
- SDOF & MDOF Modal Parameter Estimation (Curve Fitting)
- MIMO Analysis: Forced Response, Inputs & FRFs from Inputs & Responses
- Structural Modifications, Substructuring, Modal Sensitivity
- Digital Movies & Data File Translators



Navcon Acoustic Screening Chamber

- Tool for Design Engineering and QA Departments
- Quickly Assess Design Changes
- Acoustical Testing of small products (i.e., disk drives, optical drives, spindle motors, etc.)
- Multi-Channel Data Acquisition (1/3 Oct., Narrow Band Analysis)
- Spatial & Time Averaging
- Portable Chamber & Data Acquisition
- Diffuse Sound Field Testing
- High Transmission Loss Chamber Design
- Trend Noise Emission during Warm-up



Seminars & Workshops - Approximately 100 engineers and technicians have attend Navcon seminars and workshops each year since 1987. Navcon's principal trainings include Acoustic Intensity, Environmental Noise & Modal Testing. In addition, Navcon presents classes on Digital Signal Processing, Noise & Vibration Control and specialized Software/Hardware operation.

Acoustic Intensity Theory & Applications

- 3 day Intensive Short Course
- Review of Basic Acoustics
- Acoustic Intensity Conceptualization, Theory, Measurement Techniques & Applications
- Time evenly split between the Classroom & the Laboratory

- Attendees conduct SIMO & MIMO modal tests & can test their company products

Environmental Noise Course

Hands-On Modal Testing & Analysis Course

- 4 day Intensive Short Course designed for Engineers and Technicians with little or no Experience in Modal Test Methods
- Each day includes Classroom Lectures supported by Laboratory Exercises (measurements, modal theory, parameter estimation, model correlation, etc.)

- 3 day Intensive Short Course designed for Engineers, Technicians and Hygienists working in the field of environmental noise, community and/or industrial noise measurement, analysis and control.

- Fundamentals of Acoustics & Sound Source Characterizations
- Outdoor sound propagation based upon national & international standards & guidelines
- Attendees conduct sound power tests, create 3-dimensional acoustical models and generate analytical & experimental noise contour maps.

Laser Vibrometry

Navcon provides measurement services & product training for Single Fiber, Fixed Head and Scanning Laser Vibrometers. Navcon also offers short and long term rentals of Polytec Laser Vibrometers. The photo below shows Navcon's Scanning Laser setup for a SIMO Modal Test of an industrial impeller.

