



# Forensic Engineering

## Services:

Building Acoustics

Wind and Snow Loading

Environmental Noise

Air Quality Studies

Environmental Assessments

Wind Tunnel Testing

Structural Vibrations

dfa provides investigative services in the areas of structural failures, environmental effects on buildings and people, as well as building code compliance issues and scope of repairs. Our expertise is supported with a wide range of full scale instrumentation and a wind tunnel testing laboratory used to simulate wind and snow effects on structures. dfa is experienced in dealing with virtually all types of structures, including: buildings, towers, bridges, fabric structures, farm structures, as well as foundations and related soil issues.

Some typical services offered include:

- ◆ Building & Roof collapses;
- ◆ Wind & Snow effects on Structures;
- ◆ Foundation damage assessment;
- ◆ Mechanical component failure analysis;
- ◆ Building envelope failure analysis, air leakage and thermal performance;
- ◆ Structural services related to fire damages & soil decontamination;
- ◆ Effects of ground vibrations from vehicles (automobiles, trains, buses);
- ◆ Effects of ground and air-borne vibrations from blasting and construction;
- ◆ Acoustic and noise issues in the environment and within buildings.

Building failures can occur in dramatic ways such as complete failure of the structure.....



*Collapse of a farm silo following a fire*

...or in more subtle ways such as building envelope failures leading to pipe freezing and flooding.



*Left & Above: Burst pipes due to entry of cold air caused flooding in house*

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Foundation damages may arise from a number of environmental effects, such as; changing ground water conditions, soil moisture depletion by trees, and ground vibrations.



*Installation of micro-piles to support damaged foundation in poor soil conditions*



*Ground vibrations due to construction equipment may damages foundations*



*Structural scope of repair following a fire*