



## School's wood-fired boiler makes the grade

### CHALLENGE

For many school districts in New England, providing adequate heat to their facilities during the harsh winters has become increasingly expensive owing to the rise in costs of fossil fuel-based energy sources. The region's plentiful supply of wood, along with improving boiler technology, is making wood-fired boilers more attractive. For this heat source to be safe, however, wood-fired boilers must meet air quality standards.

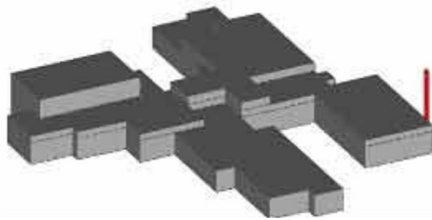
### INITIATIVE

The SAU #70 school district retained RSG to conduct an air quality study for the Richmond Middle School in Hanover, New Hampshire. We conducted the study in 2003, during the planning and design stage of the school, to identify the proper location and height for the school's proposed wood-fired boiler stack. To prepare the air pollution permit application for the wood-fired boiler for submittal to the New Hampshire Air Resources Division, we:

- Collaborated with project team members, including the boiler manufacturer, the civil and mechanical engineers, and the architect, to gather data and report results for the air quality study
- Estimated short-term (hourly to daily) and long-term (annual) emissions of criteria and odiferous air pollutants from wood chip combustion in the boiler
- Developed a computer-based air pollutant dispersion model, based on U.S. Environmental Protection Agency modeling software and methods
- Estimated air pollutant concentrations at air exchange locations on the building and at ground locations proximate to the building
- Compared model-predicted results with National Ambient Air Quality Standards, Prevention of Significant Deterioration requirements, and known odor thresholds to determine whether the stack location and height would provide sufficient dispersion of air pollutants

### RESULTS

We worked successfully with all stakeholders to identify a stack location and height that met project objectives, satisfied neighbors' concerns, and met all applicable air quality standards. Our client received its air pollution permit from the New Hampshire Air Resources Division to construct the wood boiler and its stack.



*RSG used air dispersion modeling software to develop three-dimensional models of buildings and the stack. Once the stack location was agreed upon, we identified a stack height that would have the least possible aesthetic impact while also protecting the middle school from stack emission fumes.*

### Contact Information

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