Responding to a growing concern about the health hazards of asbestos fibers, the city of Toronto, Ontario, Canada, has coated asbestos-containing fireproofing in its 816,000 square foot City Hall.

Toronto officials had the choice of replacing the insulation, or eliminating asbestos fiber “fallout” by encapsulating it. Removal of the asbestos would have created serious air contamination problems and the process would have required stringent personnel protection measures and extensive clean-up. Analysis showed that replacing the insulation would also have been more costly compared with encapsulation.

The material selected to maintain the insulating value of the asbestos but
contain the friable fibers was a formulation made for Dalnor Construction Services Ltd. The formulation is based on Du Pont neoprene synthetic rubber. It is an airless spray-applied water-based encapsulant that penetrates as well as coats the fibrous asbestos, according to Du Pont.

The neoprene-based coating cures at ambient temperatures, forming a tough, long-lasting cocoon to prevent further “raining” of health threatening microscopic mineral fibers, the company claims.

Strap Enterprises, Inc., specialists in asbestos removal and encapsulation, recommended the process. Strap based its recommendation on an adhesion/cohesion test of the original sprayed asbestos ceiling insulation. During the test a 454-g weight is suspended over 9-cm diameter area. If the weight can be supported for 30 seconds, the condition of the insulation is considered satisfactory for encapsulation. The tests showed that the material in the City Hall building could withstand the additional weight of encapsulation.

The water-based system is mixed with a wetting agent for maximum penetration of the hydrophobic asbestos fiber matrix. Actual coverage depends upon the porosity and profile of the surface, but, allowing for a 20 percent spray loss, approximately one liter per square meter is required. Drying time is about one hour and complete cure is achieved in four to seven days. Because of its neoprene content, the dried film is elastic and will withstand normal physical contact without damage, DuPont says.

The product supplied by Dalnor Construction Services, TACCSEAL 256, has been used extensively in Canada to seal asbestos fireproofing on structural steel and metal decking, concrete beams and ceilings, steam pipe lagging and the exteriors of metal air ducts. For the city of Toronto, neoprene encapsulation is providing a practical method for eliminating a serious air-born asbestos fibers problem, Dalnor claims.