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Excess loading from a boom truck may have contributed to the collapse of a Windsor, Ont. parking garage.

Windsor, Ontario parking garage collapse demonstrates need for shoring

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The collapse of a Windsor parking garage this month is an object lesson in the need to shore up the roofs of such structures before significant extra weight is placed on the surface above.

Dr. Gina Cody, president of Construction Control Inc. of Woodbridge, Ont., said that whenever a heavy vehicle such as an articulated boom truck for maintenance or window washing is wheeled on to the surface, strengthening the roof below should be done as "a rule of thumb, unless the parking garage is really really heavily reinforced and it was designed for excessive loading, which is uncommon."

Cody helped write the 2007 upgraded Canadian Standards Association (CSA) S-413 Parking Structure Standard for durability in design and construction of garages.

Cody said parking garage owners should be wary of adding any major weight to the structures.

"The minute you bring in equipment that could have 10,000 to 15,000 pounds of loading that would be in addition to what the slab is designed for it's asking for trouble," she said.

Cody said garage levels or floors should therefore be reinforced by using post shores and shoring frames.

Cody was speaking in the wake of a small parking garage collapse in Windsor July 8, apparently caused by excess weight from a zoom boom truck. This was in addition to an extra layer of asphalt applied to the street level surface of the garage at some point in the past, which had weakened it.

There were no deaths though the boom operator, who was washing windows on an adjacent building, suffered injuries and was taken to hospital when the surface collapsed below his vehicle and he fell to the garage's underground parking level. The 140-foot by 109-foot structure near downtown Windsor was a paved surface lot with one underground floor.

Windsor engineer Norm Becker, hired by the garage's owner, Romalist Developments Ltd. to investigate the collapse, said the "dead weight" from asphalt resurfacing done some years ago contributed to the failure.

He said garage owners need to consult engineers before doing such repairs because the additional layer of asphalt can weaken the structure.

The repairs were done prior to Romalist's purchase of the garage three years ago, the company's lawyer Marianna Arpino said.

Cody said that garage owners, when ordering repairs, sometimes, "forget to go back and check the drawings and that shows how important it is to really hold on to your structural drawings for the original design."

Bill Jean, acting executive director for the City of Windsor building department, said the garage was built 42 years ago and the city has no record of a permit being taken out by a previous owner to add the layer of asphalt. He said they "should have" done so.

The boom weighed about 22,000 pounds. The collapse occurred in the southern half of the lot.

There were reportedly as many as eight vehicles — some heavily damaged — in the lower level and more than 10 were removed from the undamaged north side.



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