Incident Summary #II-978382-2020 (#16593) (FINAL)

SUPPORTING INFORMATION	Incident Date		February 10, 2020
	Location		Vancouver, BC
	Regulated industry sector		Elevating devices - Construction / personnel hoist/ man lift
	Impact – Injury	Qty injuries	0
		Injury description	None
		Injury rating	None
	Impact – Damage	Damage description	Approximately 130’ tower section damaged
		Damage rating	Major
	Incident rating		Major
	Incident overview		As the construction hoist traveled down, the cab struck the tower causing significant damage to the tower. Other components of the cab were also scraping the tower as the cab traveled up and down.
INVESTIGATION CONCLUSIONS	Site, system and components		Construction hoists, also known as man-lifts, personnel hoists and construction elevators, are commonly used when constructing high-rise buildings to transport personnel, tools, equipment and materials between floors. These elevating devices are temporary and installed on the exterior of the building under construction. As the hoist cab is moving, the guide rollers that are mounted on the cab guide the cab along the tower. The guide rollers not only guide the cab along the tower they also prevent/minimize the cab from swaying/rocking.
	Failure scenario(s)		Due to the tight tolerance of the truck roller assembly to the tower, the failure of a bearing in the guide roller in the lower truck assembly caused the cab to sway/rock excessively which resulted in the upper truck assembly to make contact with the tower causing the damage (See pictures 3-4).
	Facts and evidence		During the removal process the tower more closely inspected to ascertain components contacted the tower. It was found that the bolts that secured the guide rollers on the truck assembly had struck the tower based on the damage on the bolt head (See picture 6). It was also found that the bolts of the truck assembly on the opposite site of the cab were scraping the tower on the opposite side of the tower as the cab traveled up and down the tower (See picture 5). **On-site investigation and interviews with Mechanic:** • Mechanic replaced a roller on the lower truck assembly (building side) • Mechanic went on top of the car to perform an inspection to ensure the unit was operating as per manufacturer’s specifications. This is when damage to the tower was discovered

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	• Mechanic and Safety Officer accessed the top of the cab and traveled up to the 6th floor to view the damage to the tower. Investigation beyond this point was not conducted due to the unknown structural integrity **Interview with Hoist Operator:** • Hoist Operator stated that he noticed that there were unusual noises emanating from the hoist rollers and also notice unusual swaying/rocking side to side of the cab around mid-day of February 6, 2020 • Notified superintendent regarding this issue • At about mid-afternoon while carrying construction personnel down on the hoist heard a very loud bang around the 6th and 7th floor • He continued to travel down to allow the passengers to exit the unit and removed the unit out of service
Causes and contributing factors	It is highly probable that failure of one of the guide rollers caused the cab to sway excessively causing the truck assembly to come into contact with the tower resulting in damage to the tower sections.

Photos or diagrams

Failed Guide Roller – Bearing Failure

Picture #1

Upper Truck Assembly – Building Side

Picture #2

Damaged Tower Section

Picture #3

Picture #4


Lower Guide Roller – Opposite Building Side
Contact with tower

Picture #5

Upper Truck Assembly – Building Side

Picture #6