

## Incident Summary #II-1460396-2022 (#30255) (FINAL)

SUPPORTING INFORMATION	Incident Date	October 31, 2022	
	Location	Chemainus, Vancouver Island	
	Regulated industry sector	Elevating Devices	
	Impact	Qty injuries	1
		Injury description	Lacerations to the face, bruising to the back, shoulder, and arms
		Injury rating	Moderate
	Damage	Damage description	N/A
		Damage rating	None
Incident rating	Moderate		
Incident overview	An unregistered, non-code compliant design and installation of a Dumbwaiter with an open carriage and landing doors that had no door locking devices was being used by a worker. The worker loaded the platform at the second level and tried to send the platform down – they heard unusual noises in the hoistway and opened the landing doors to investigate. A delivery basket was lodged in the system, and in attempting to dislodge the obstruction the worker lost their balance and fell down the shaft (9 feet) and landed on the platform which was at the first landing.		
INVESTIGATION CONCLUSIONS	Site, system and components	<p>A dumbwaiter is a delivery system designed material lift. This device carries freight only and no passengers. It has a reduced capacity for loading and the platform area is limited to 1 meter square by code.</p> <p>The dumbwaiter carriage is lifted and lowered by a steel rope. The rope is connected to a winding drum located at the top of the hoistway that is powered by an electric motor connected to the winding drum through a gearbox. <a href="#">(Photo 5)</a>.</p> <p>Hoistway entrances are swing type doors with no automatic locking means. Where the bottom of a hoistway entrance is located within 600mm of the adjacent floor, the hoistway entrance requires an interlock that will prevent the door from being opened when the dumbwaiter is not located at the landing.</p>	
	Failure scenario(s)	<ol style="list-style-type: none"> <li>1) The open platform design of this system allows for any materials being transported to hang over the edges and get caught on the equipment in the hoistway while in travel <a href="#">(Photo 3)</a>.</li> <li>2) This system did not have the required door locking devices. The absence of door locking devices allow the users to open the doors at the top and bottom floors without the carriage being at that location.</li> <li>3) The top door is 3' by 3' and is located flush with the floor level <a href="#">(Photo 1 &amp; 2)</a>.</li> <li>4) To load at the top floor, the user needs to crouch, kneel, or bend over to insert materials into the carriage. It is therefore possible to have the platform at the bottom landing and open the top floor doors <a href="#">(Photo 4)</a>.</li> </ol>	

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	<p>5) The hoistway was unlit at the time of the accident.</p> <p>6) Empty shopping baskets were loaded onto the dumbwaiter at the top landing. The open carriage design allowed a basket to come out of the carriage and become lodged against the hoistway wall, making a loud noise. The worker operating the dumbwaiter stopped the dumbwaiter and opened the unlocked top landing entrance to investigate the noise. The worker squatted down to investigate the hoistway and saw the basket lodged against the hoistway wall, they leaned into the entrance to try dislodging the basket, lost their balance and fell into the hoistway opening, landing on top of the dumbwaiter carriage located approximately 9' below the top landing.</p>
<p>Facts and evidence</p>	<p>The Dumbwaiter was not registered or inspected in the Province of BC and was not being serviced by a licensed contractor. Except in private residences, the Elevating Devices Safety Regulation requires dumbwaiters in BC to be designed and installed to the requirements of the CSA B44 code.</p> <p>During on-site investigation, the attending Safety Officer found several design and code violations related to unit that contributed to this incident:</p> <ul style="list-style-type: none"> <li>• Hoistway lighting was 'off' at time of incident.</li> <li>• No door locking devices were installed on hoistway entrances.</li> <li>• Hoistway entrances were located within 600mm of the landing floor and were not equipped with interlocks.</li> <li>• The dumbwaiter carriage had no ceiling and no entrance gates.</li> </ul> <p>Other code violations were found creating significant hazards but did not contribute to this incident:</p> <ul style="list-style-type: none"> <li>• No braking systems.</li> <li>• No lockable disconnects.</li> <li>• No capacity limits made available.</li> <li>• No engineered drawings confirming the design is code compliant.</li> <li>• No car top stop switch installed.</li> </ul>
<p>Causes and contributing factors</p>	<p>It is almost certain that the lack of interlocks and lack of carriage gate and carriage ceiling, along with the fact that the unpermitted installation of this unit, lack of code-compliant safety components, and unregistered design led to the fall hazard and injury and were the root cause.</p>



Photo 1 – Second floor landing's hoistway and door openings.



Photo 2 – First floor landing’s hoistway and door opening.



Photo 3 - First floor platform and hall door opened showing open platform design.



Photo 4 – Second floor platform and hall door opened.



**Photo 5** – Capstan motor winch assembly for hoisting the platform, located at top of shaft.