



SAFETY ORDER

No: SO-P4 091002 1

DOPPELMAYR CTEC SAFETY ALERT BULLETIN SA-08-021 WOLFURT KD08003E

Date of Issue: October 2, 2009

This safety order is being issued pursuant to section 31 of the Safety Standards Act. A person affected by this safety order may appeal this order, in writing, to the Safety Standards Appeal Board in accordance with Section 51 of the Safety Standards Act. It is an offence under section 72 not to comply with a safety order.

Part 1: Details of Regulated Work or Regulated Product

This safety order is being issued in relation to a regulated product – specifically passenger ropeway towers affected by the attached **Doppelmayr CTEC Safety Alert Bulletin SA-08-021 Wolfurt KD08003E Tower Failure due to Water Intrusion** issued on December 20, 2008.

An incident involving the failure of a steel support tower on a detachable 8 passenger gondola has prompted the manufacturer to issue this Safety Alert Bulletin to all passenger ropeway contractors operating similar equipment.

Part 2: Requirement(s) of this safety order

All passenger ropeway contractors operating passenger ropeways affected by **Doppelmayr CTEC Safety Alert Bulletin SA-08-021 Wolfurt KD08003E** are hereby ordered to confirm that all requirements identified in the safety alert bulletin have been addressed. The requirements identified are as follows:

- 3.1 Required Actions: Inspections ASAP but at the latest within the next 30 days
- 3.1.1 Resonance Check
- 3.1.2 Concrete-Filled Shafts/ Shaft Sections
- 3.1.3 Visual Inspection
- 3.2 Required Actions: Annual Inspections (Specifically, All required 3/8" drain holes have been installed. Inspections prior to 2009/2010 operating season and that future inspections will be maintained and recorded in maintenance logs. If drain holes are to be plugged with any type of fitting then the manufacturer must be contacted to confirm that it is acceptable)

See copy of Safety Alert Bulletin attached to this safety order.

Complete the attached response form and fax/email to the British Columbia Safety Authority New Westminster office (fax number 778.396.2035 c/o Jason Gill or email Jason.Gill@safetyauthority.ca) upon completion/verification that the above noted requirements have been complied with. The completed forms must be received by the Provincial Safety Manager no later than November 15, 2009.

Part 3: Details of Issue

This safety order is being issued to all passenger ropeway contractors who operate Doppelmayr CTEC passenger ropeway installations identified in Doppelmayr CTEC Safety Alert Bulletin **SA-08-021 Wolfurt KD08003E**.



Part 4: Details of Ordering Safety Manager or Safety Officer – Please read following page

I certify that I am authorized to issue this safety order in accordance with section 15 (d) of the Safety Standards Act or that I have been delegated this power under section 15 (g) of the Safety Standards Act.



Jason Gill
Provincial Safety Manager – Passenger Ropeways and Amusement Devices

Date: October 2, 2009

Safety Standards Act:

Safety Orders

- 31
- (1) to prevent, avoid or reduce risk of personal injury or damage to property, a provincial safety manager may, in writing, issue a safety order.
 - (2) A safety order may be issued to any person in relation to any of the following:
 - (a) regulated work or regulated products generally;
 - (b) a specific class of regulated product or regulated work;
 - (c) a specific regulated product or regulated work.
 - (3) For certainty, a safety order issued under this section may apply to
 - (a) regulated work that meets the requirements under this Act,
 - (b) regulated work that previously met the requirements under this Act or a former Act but does not meet the current requirements under this Act,
 - (c) regulated products that meet the requirements under this Act, or
 - (d) regulated products that previously met the requirements under this Act or a former Act but do not meet the current requirements under this Act, including a regulated product that bears a certification mark.
 - (4) A safety order may specify any requirement that is intended to prevent, avoid or reduce the risk of personal injury or damage to property and may include any of the following orders:
 - (a) that an existing regulated work or regulated product must be made safe in compliance with the safety order;
 - (b) that a regulated product must be
 - (i) disconnected from a power source,
 - (ii) uninstalled, or
 - (iii) modified before continued use;
 - (c) that a regulated product must be operated, installed, manufactured or disposed of only as specified or that a regulated product must not be moved;
 - (d) that current or future regulated work or a regulated product must conform to the terms or conditions of the order;
 - (e) that a person take or refrain from taking any action that a safety manager considers necessary to prevent, avoid or reduce a risk of personal injury to persons or damage to property;
 - (f) that the manufacturer make reasonable efforts to recall the regulated product.
 - (5) The provincial safety manager must give written notice of the safety order to the following persons:
 - (a) the manufacturer of the regulated product;
 - (b) an owner of the regulated product if the identity of the owner is known to the provincial safety manager;
 - (c) the person in charge of the regulated work.
 - (6) The notice must state the reasons for the decision and that the person has the right to appeal the decision to the appeal board.
 - (7) Despite section 54, a safety order may not be stayed during an appeal.

References:

Safety Standards Act

For more information on the British Columbia Safety Authority, please visit our website at:

www.safetyauthority.ca



SAFETY ORDER RESPONSE FORM

The information on this form is collected to administer the provisions of the *Safety Standards Act*. If you have questions about the collection, use or disclosure of this information, contact the Records, Information and Privacy Analyst at 1-866-566-SAFE (7233).

The company and/or designated representative in receipt of a safety order must fill out and submit this form to the British Columbia Safety Authority within the timeframe stipulated on the safety order.

Safety Order No: _____

Operating Company: _____

The following have been completed as required in the above safety order (List all Passenger Ropeway Names and Registration No.'s affected):

Person signifying completion of safety order requirement/s: _____
(Please print name)

Position Title: _____

Signature: _____

Completion Date: _____
Month / Day / Year

Return this form to:

Attention: Jason Gill
Provincial Safety Manager, Passenger Ropeways and Amusement Devices
505 - 6th Street, Suite 200, New Westminster, British Columbia, Canada V3L 0E1
Tel: 778.396.2047 Fax: 778.396.2035
Email: Jason.Gill@safetyauthority.ca

Author <i>Auteur</i>	Release date <i>Date émission</i>	Doc. no. <i>No. de doc.</i>	
WOL	12/20/2008	SA-08-021 Wolfurt KD08003E	

SAFETY ALERT BULLETIN

Lift manufacturer / <i>Fabricant</i> :	Hall, VonRoll, Thiokol, CTEC, Garaventa CTEC, Doppelmayr, Doppelmayr CTEC	Fab. Group / <i>Groupe de fabrication</i> :	FAB GROUP 25 – Tower Equipment
Lift type / <i>Type de remontée</i> :	All lifts	Effective date / <i>Date en vigueur</i> :	December 20, 2008
Supersedes / <i>Remplace</i> :	N/A		

Title: **Tower Failure Due to Water Intrusion**

1. Generalities

1.1 Abstract of issue (summary)

In direct response to a recent incident, the Doppelmayr main office in Wolfurt, Austria has released the attached Safety Alert Bulletin KD08003E.

1.2 Reason for release (summary)

See attached Doppelmayr Wolfurt Safety Alert Bulletin KD08003E.

2. Scope

See attached Doppelmayr Wolfurt Safety Alert Bulletin KD08003E.

3. Action to be taken and completion date

(Inspection, modification, replacement, NDT, part, manual revision, procedural change)


All actions prescribed by attached Doppelmayr Wolfurt Safety Alert Bulletin KD08003E must be completed and documented by all customers.

4. Detail of issue

Text, drawings, schematics

See attached Doppelmayr Wolfurt Safety Alert Bulletin KD08003E.

DOPPELMAYR SEILBAHNEN GmbH, WOLFURT

		BULLETIN	Ersteller/ Author	Datum/ Date	Dok.- Nr./ Doc.-ID	Seite/ Page
			CH/HS/LAK	20.12.2008	KD08003E	1 / 5
Ersatz für/ Supersedes:	Ersetzt durch/ Replaced by:	Type:		Baugruppe/ Assembly group:		
-	-			Towers		
Abgeleitet von / Based on:	SA-06-022 Safety Alert Bulletin					
Classification Code:	x	OS	O	IS	I	

Tower failure due to water intrusion

1. General

1.1 Abstract of issue (summary)

Accumulated water within tower tubes and other hollow sections that have a sealed base or clogged drainage (including but not limited to terminal structures, crossarms, carriers, etc.) can have catastrophic effects upon structural integrity.

1.2 Reasons for release

Recently, accumulated water within a tower tube froze and resulted in a complete failure of the tower splice plate weld. The failure occurred during operation on an 8MGD installation built in 1994 in Canada. The affected tower design was a two-section tower of which the lower section had an opening for concrete fill in the top plate. The lower section was filled approximately 70% with concrete. The remaining space within the tower tube filled up with water which froze and expanded causing the upper section of the tower to separate and fall.

Inspections subsequent to the event, have reported that water or ice has been discovered in towers and other structural members. In some instances, damage to structure members has been noted.


2. Scope

2.1 Affected model, type, parts

While the noted failure involved a 1994 Doppelmayr two-piece tower on a detachable gondola, any tower design or other hollow structures that have a sealed base or clogged drainage could be similarly affected if there is a pathway for water intrusion or an opening for air to enter and cause condensation.

This bulletin specifies describes tower inspections but also applies to terminal masts and other hollow structures with a sealed base. If the presence of water/ice is found or suspected within other hollow structures, consult with the nearest Doppelmayr office for review and recommended procedures.

DOPPELMAYR SEILBAHNEN GmbH, WOLFURT

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Abgeleitet von / Based on:		SA-06-022 Safety Alert Bulletin					
Classification Code:		x OS	O	IS	I		

3. Action to be taken / Completion date

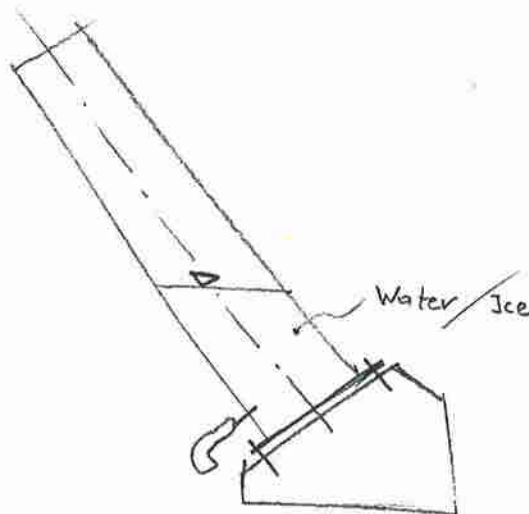
3.1 Required Actions: inspections ASAP but at the latest within the next 30 days

ASAP / no later than within the next 30 days, a resonance check and visual inspection of each tower tube or other hollow structure with a sealed base must be completed.


3.1.1 Resonance check: Each tower tube or other hollow structure with a sealed base must be checked for the presence of internal water/ice. When struck with a hammer in several ascending points from the base, a change in the resonating tone of the tower may indicate the presence of water/ice (a tower with water/ice or concrete tends to exhibit a solid "dead" sound compared to a more normal bell-like tone). Some tone differences may be noted due to proximity to base gussets or the presence of internal concrete (see additional information within Section 3.1.2) and will not necessarily indicate the presence of water.

If with a resonance check, water/ice is suspected to be present within the tower but further than 4" (100 mm) from the top plate, a small hole 3/8" - 1/2" (10 - 12 mm) must be drilled near the tower base at the downhill side of the tower along the centerline of the lift 2" to 4" (50 - 100 mm) from the tower base to provide a pathway for water to escape. See illustration below.

If with a resonance check, water/ice is found or suspected inside the tower within 4" (100 mm) of the top plate (see Section 3.1.2) **this shall be cause for immediate and continued closure of the lift to public transportation** and must be reported to the nearest Doppelmayr representation office for review and recommended repair procedures.



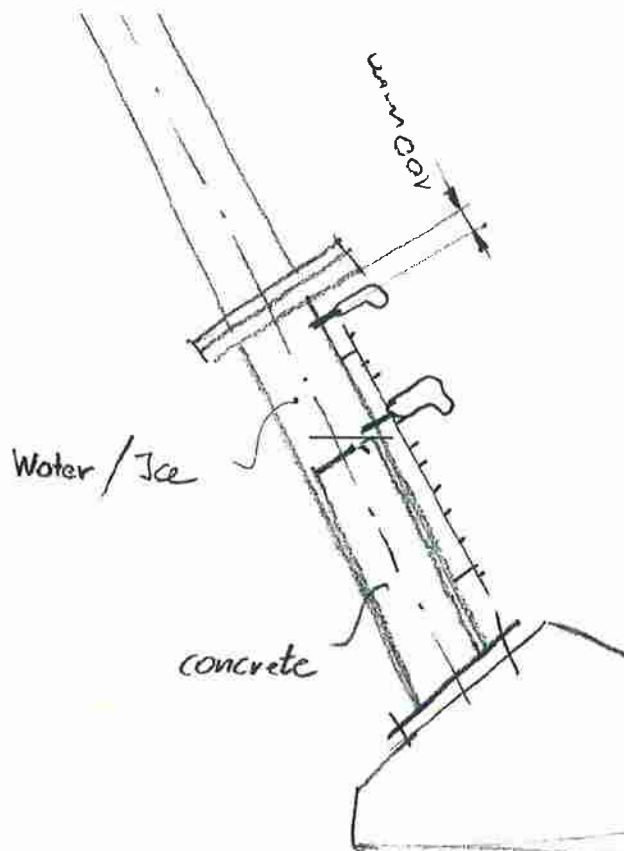
DOPPELMAYR SEILBAHNEN GmbH, WOLFURT

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--	--		Towers			
Abgeleitet von / Based on:	SA-06-022 Safety Alert Bulletin					
Classification Code:	x	OS	O	IS	I	


3.1.2 Concrete-filled shafts / shaft sections

For tower shaft sections partially filled with concrete through the top plate, check the tower section with the hammer method as described previously. If water/ice is suspected, drill a small hole 3/8" - 1/2" (10 - 12 mm) approx. 2 inches (50 mm) below the top plate on the uphill side of the tower (behind the ladder). Tower shafts with a cover for concrete fill on the outside of the shaft already have a drain hole and the cover can be removed for inspection purposes. **If ice is found in this section, this shall be cause for immediate and continued closure of the lift to public transportation** and must be reported to the nearest Doppelmayr representation office for review and recommended repair procedures.

A small drain hole 3/8" - 1/2" (10 - 12 mm) is required to eliminate the water above the concrete level. See illustration below.



DOPPELMAYR SEILBAHNEN GmbH, WOLFURT

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Abgeleitet von / Based on:		SA-06-022 Safety Alert Bulletin					
Classification Code:		x OS	O	IS			

Required Actions: 30 day inspections (continued)


3.1.3 Visual inspection: Each tower tube or other hollow structure with a sealed base must be checked for signs of fatigue or deformation caused by ice. Any suspected indication noted visually must be confirmed by magnetic particle examination. The presence of any confirmed indication must be reported to the nearest Doppelmayr representation office for review and recommended repair procedures. Any confirmed indication greater than 1 inch (25 mm) **shall be cause for immediate and continued closure of the lift to public transportation** until repairs are authorized by Doppelmayr and implemented.

3.2 Required Actions: Annual Inspections

Routine annual maintenance must include a close visual inspection of all tower components including the tower bases and splice connection plates. Signs of fatigue due to freeze / thaw cycles of cyclic loading may present themselves as indications (cracks) during the early stages, therefore, all welds, gussets and tower tubes should be subjected to close visual inspection annually. Any suspected indication noted visually must be confirmed by magnetic particle examination. The presence of any confirmed indication must be reported to the nearest Doppelmayr representation office for review and recommended repair procedures.

A small hole 3/8" - 1/2" (10 - 12 mm) must be drilled near the tower base at the downhill side of each tower along the centerline of the lift 2" to 4" (50 - 100 mm) from the tower base to provide a pathway for water to escape. This hole must be inspected annually and kept clear of debris. Where there are upper tower sections that are not open to the base section, a hole must also be drilled along the centerline of the lift 2" to 4" (50 - 100 mm) above the tower section base plate. This hole may be drilled on the ladder side of the tower.

DOPPELMAYR SEILBAHNEN GmbH, WOLFURT

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Classification Code:	x OS	O	IS	I		

4. Detail of issue

Text, drawings, schematics



Tower with 2 x 6T/2FR assemblies;
16,7m tall; 9,7m of 30" tube spliced
to 7m of 24" tube.

Lower tower section filled approx.
5m with concrete, the remainder
with ice.

Temperature approx. -12°C/10°F.

Bottom tower section top flange
plate was pushed off the shaft by
ice and caused top tower section to
separate and fall.

The comm. line and the haul ropes
supported the tower head so the
upper section came to rest in a
more or less vertical position on the
ground.