Subject: Structural failure due to water intrusion & ice expansion
Sent to: All Chair Lift Owners / Operators

1. INTRODUCTION
A recent incident on a ski lift in British Columbia involving tower failure due to water intrusion has prompted the release of this safety alert.

2. ALERT
The possibility of structural failure exists in circumstances where there is a potential for water to accumulate inside any enclosed structural assembly. This is due to the freezing of water and the resulting expansion of ice.

Doppelmayr CTEC issued Safety Alert Bulletin SA-06-022 on December 31, 2006, which noted that accumulated water within tower tubes can have catastrophic effects upon structural integrity when it freezes.

3. INSTRUCTIONS
While the Doppelmayr bulletin specifically referenced a particular model of tower, it should be noted that any tower design that has a sealed base, or other structural assembly that may accumulate water, could similarly be affected if there is a pathway for water intrusion.

All chair lift owners/operators should immediately perform a close visual inspection of their above-ground passenger ropeways including all tower components and tower bases, for signs of water accumulation inside any structure. Evidence of such may appear as bulging, weeping or cracks in the welds. As an additional precaution, operators should perform soundings of any hollow structural component. For towers, it is suggested to strike the vertical face of the tower at several locations in an ascending order starting from the tower base along the entire tower length with a dead-blow hammer. A solid dead sound compared to a more bell-like (hollow) tone may indicate the presence of water in the tower. If any indications are noted, the owner/operator should immediately remove the device from service and contact the manufacturer for further instructions. TSSA should also be notified.

Where drain holes at the tower base are provided, operators should maintain the functionality of the drain holes. Care must be taken to eliminate or minimize any obvious source of water intrusion.

4. BACKGROUND
The Doppelmayr CTEC bulletin SA-06-022 was originally issued in response to a specific incident. A copy of this bulletin is available at: http://www.tssa.org/regulated/ski/skiSafety.asp?loc3=mfrbulletins

On December 16, 2008, an incident occurred at Whistler Blackcomb in BC in which a tower sustained a structural failure. The owner of the device indicated that this failure occurred after water seeped into the tower and froze, causing the tower splice to rupture.

TSSA is issuing this safety alert bulletin in response to both incidents and to create a greater awareness of the hazards of water intrusion in towers.

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