Guideline for snow retention systems for ski jumping hills

Safe and reliable snow retention system for ski jumping hills equipped with plastic covering

Project

- **Decide in favor of a secure system**
  Use a concept that is based on a static calculation and/or is offered by an experienced developer of a comprehensive snow retention solution.
- **Set important requirements**
  Define load hypotheses, for example:
  0.40 m snow cover with artificial snow with 700 kg/m³
  2800 N/m² standard snow load (natural snow, location-dependent)
  13500 kg mass of the snow groomer (causes a load in a small area)
- **Demanding legal commitment**
  Choose a provider who not only supplies the material but also offers a functional guarantee for a certain period (3-5 years). Alternatively, make the planner responsible for functional safety.
- **Play it safe**
  If old, existing fastening points are used for the snow retention system, determine the load-bearing capacity with static expertise or tensile tests.

Installation

- **Follow the assembly instructions**
  Avoid installation errors by providing installation instructions in a language that technical staff can understand. Do not change the specified installation technique.
- **Documentation**
  Provide the responsible technical staff with checklists to ensure that all relevant assembly steps have been carried out correctly.

Snow preparation

- **Safety first**
  Provide the technical staff with a method of hill preparation with snow that is low-risk even in unpredictable weather, e.g. rain.
- **Build from the bottom up**
  Start building up the snow layer with the snow groomer from the radius.
- **Respect load limits**
  The permissible surface load must not be exceeded at any time, even during hill preparation.

Maintenance and inspection

- **Visually inspect after each winter season**
  Mechanical damage to the net, the fastening elements and the anchor points weakens the snow retention system and should be recognized.
- **Professional revision**
  Suppliers and producers of overall snow retention systems can check the snow retention systems on site and take responsibility for them. If necessary, the residual breaking strength of the components can also be determined.

- **Prevent UV radiation**
  Avoid unnecessary exposure to sunlight by taking the nets off the hill soon in spring and storing them in a dark, dry place.
- **Adequately replace damaged components**
  Replace damaged components with original parts. All damage to the nets can be repaired, sometimes even on site.
- **Replace all textile system parts after 20 years at the latest.**
  Textile materials are subject to ageing, especially under the influence of UV light. This leads to a reduction in load-bearing capacity. For this reason, the textile snow nets should be replaced after 20 years at the latest. Much earlier in the event of unfavorable mechanical stress or storage.

Recommended by Erik Frey, Seil-Frey GmbH, 26th February 2024