



TD-Seminar for technical delegates and hill inspectors

12th-13th October 2018

Zakopane

Safety standards for ski jumping hills - Examples

ICR 411.5.1 Within the prepared guardrail section, no protrusions (screw heads/irregular shape parts, and/or gaps may exist of any size; with the exception of: timing equipment). The first guardrail section of the starting gate shall be placed at an outward angle with a rounded corner edge. The top edge of the guardrail material must be rounded and smooth along the entire length of the inrun on all panels. All constructions that extend past the end of the take-off must be covered with a stable, secured, soft material.

ICR 411.5.2 The landing area within the guardrails must be free and clear of any obstructions that could endanger a fallen jumper.

The upper edges of all guard rails must be rounded. Guardrails must be set up in such a way that a stray ski of a fallen jumper cannot go through. Guardrails constructed in concrete have to be padded with minimum 3 cm permanent soft material on the inside of the landing area.

PRINCIPLE:

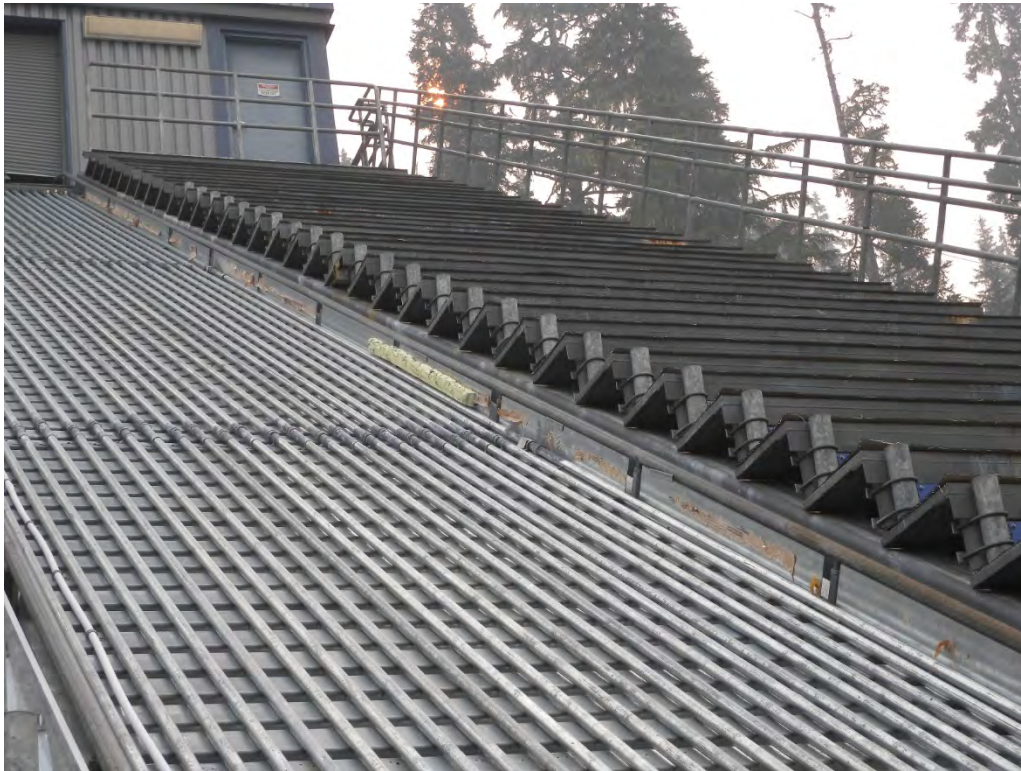
- 1.) a fallen athlete must not be injured by gaps and slots (even caught fingers), protruding parts (even a few mm) , sharp parts or hard obstacles.
- 2.) a spectator or functionary must not be endangered by loose ski of a fallen athlete
- 3.) free space for a fallen athlete is better than sideboards (where they bump on); condition is, to prepare snow in this free space thoroughly (arms and legs can be “caught” by soft snow) and that no spectator is endangered, neither by fallen athlete nor by loosened skis

TDs and/or **Hill Inspectors** should use “common sense” and think through, what could happen to a fallen athlete. As well there should be considered, what damage loosened skis could cause to spectators, trainers, functionaries. As well situation during trainings should be considered.

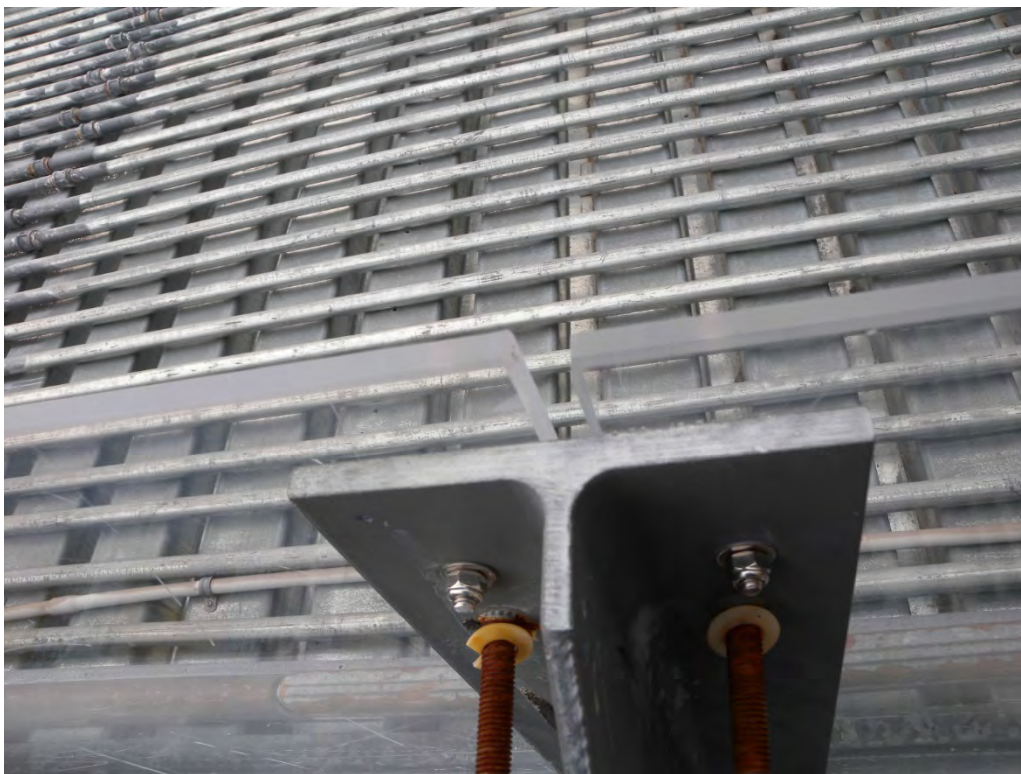
NOTE:

ICR and Norm with its conferring papers form „actual state of the art”, which has as consequence, that in case of an assurances and accident law courts use these regulations as base of their evaluation and judgement.

TDs and inspectors should take care, not to come into the field of “culpable negligence”.



open flanks of starting gates



sharp edges



slots in sideboards



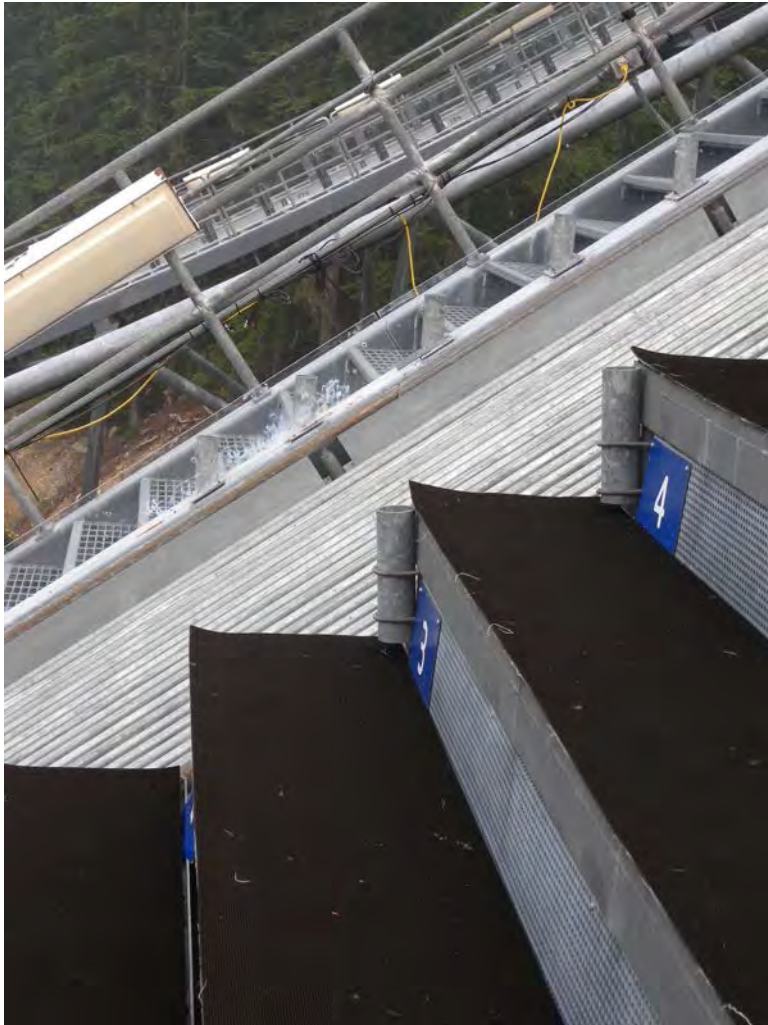
slots



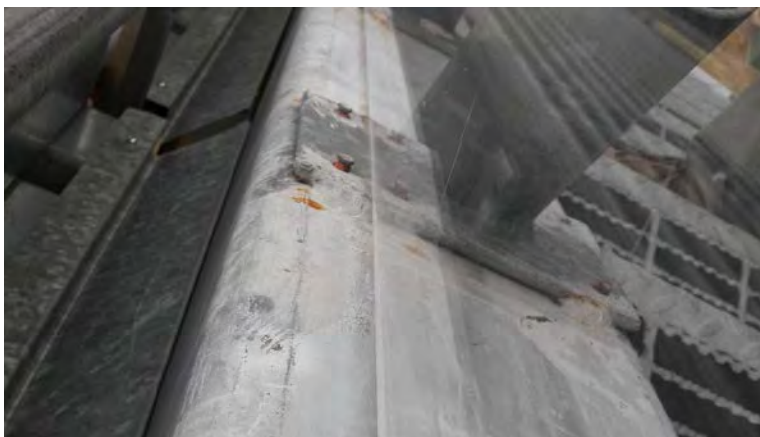
protruding fence at end of entrance stairs – cover with soft mat



protruding wooden latches besides inrun track, soft mat too short



wrong numbering of starting gates



protruding bolts



dangerous end of sideboards



protruding screw heads



loosened rubber pieces



gaps and slots



sharp and protruding part



electrical installation mounted outside of sideboards - OK



slot



slot



slot



slot



slot with 90 deg holding and sharp edged holding of plexiglass sideboards



only floppy rubber covers rails of ice moulding machine



sharp steel blades have been used to narrow slot, sharp edges !



camera as an obstacle



cameras – negative examples



camera – positive example



lamps mounted outside of plexiglass sideboards – shining through glass – OK



if steel rope brakes, pedestrians on footpath are highly endangered



cover all steel parts



bumping mat under table should be placed



bumping mat under table and covering of steel construction with soft mat necessary



storage building underneath the table



positive solution – all necessary equipment stored safely underneath the table - OK



during summertime cover steel fixing eye for preparation machine



no loose objects at knoll



slots in sideboards



slots because of sunken ground



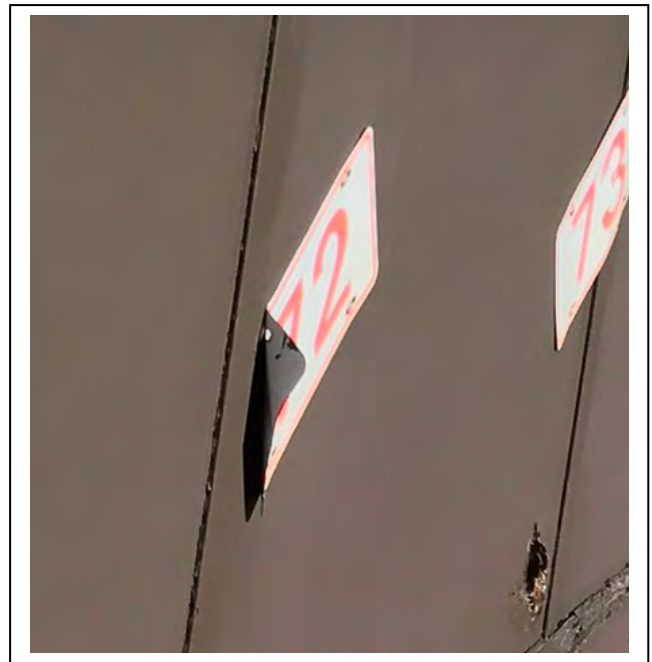
provisional prolongation of sideboards to reach 0,1 w distance to table



hard fixing edges at beginning of mat covering



curling timber



metering numbers with sharp edges



dewatering shafts with slots in outrun



wholes besides outrun



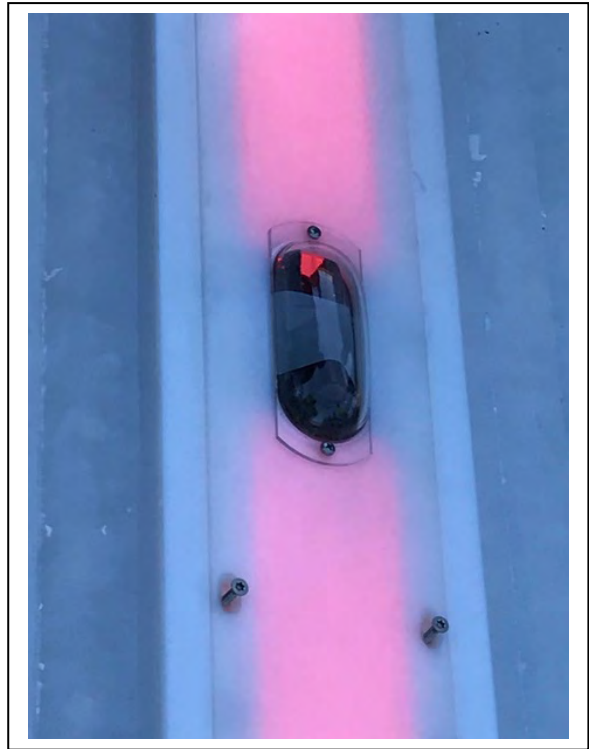
no safety plates and rotten foam mat under grating



erosion of material / settling of material underneath mat cover



protruding screw heads – round head OK, but it has been inclined because of moving of timber



protruding screw heads



concrete basement to be covered



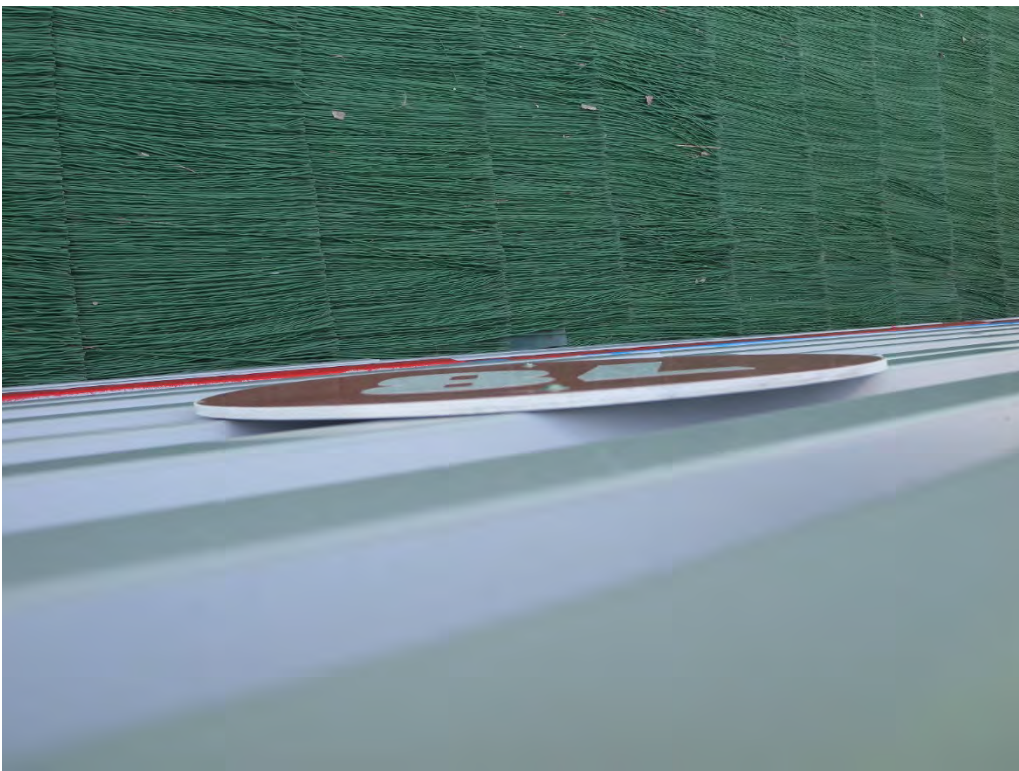
metering numbers with sharp edges (laser cut!)



sharp edges



the numbering plate is plain to sideboard, nevertheless it is sharp edged



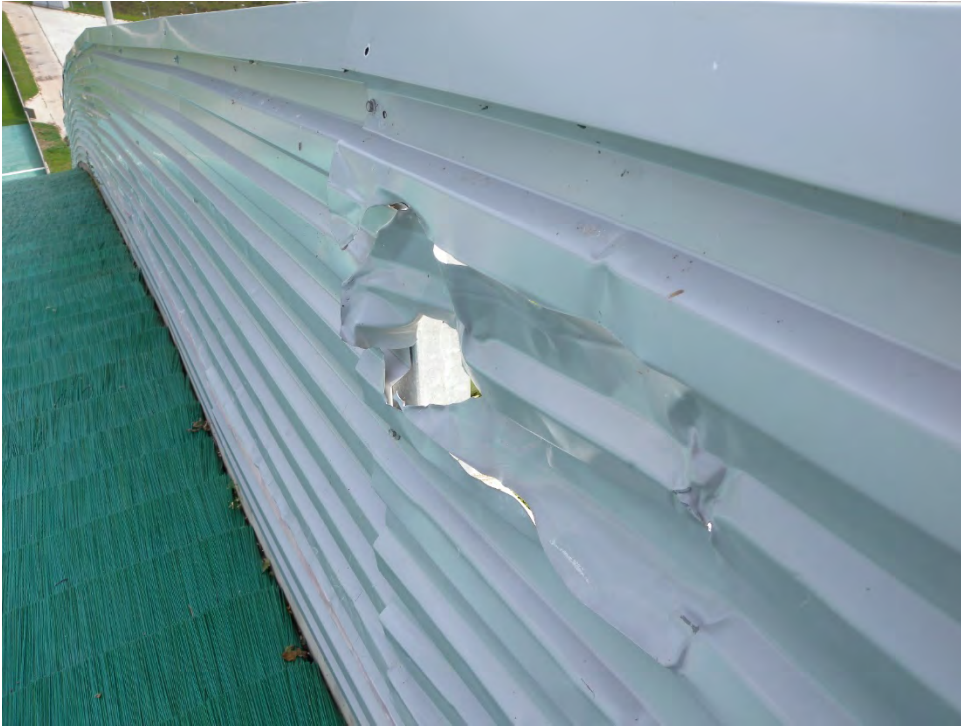
sharp and protruding edges



protruding screws – no hexagonal screw heads, only round headed screws



steel sheets not to be mounted against jumping direction



damages caused by preparation machine –dangerous for athletes



sharp edges at top of sideboards – could be rounded easily with a hand-held milling machine



edged end of sideboard to be covered with soft material



free space for fallen athlete besides inrun, but protect concrete blocks with a (soft) fence to prevent bumping down of athlete and to catch loosened skis



store of soft bumping mats – OK

Changing of mats:

-) Certificate should be prolonged, what to do, if old standard (grass stripes towards sideboards) is already existing?

Answer: it is OK, certificate can be prolonged, if there is no changing of mat-cover.

-) Mats without safety-plates are already existing, what to do?

Situation is OK, as long, as no change of mats is done (except changing of single mat-tiles for repair)

-) If renewal of sideboards is done, mats need not to be renewed and old status mat layer (grass stripes) can stay.

Other topics:

-) Changing of starting gates (additional ones downhill) – new certificate necessary.

-) End of guardrails along knoll / uphill at w 0,1:

unanimous decision of SC Jumping Hills 7.4.2017: “The beginning of the guardrails must emerge out of the hill in a radius with $r \geq 70\text{cm}$ (plus snow height); at flying hills maximum distance from table to beginning of guardrails must be 15 m”

-) New inrun track – new certificate necessary.

-) For certificate winter's profile is essential

-) New sideboards in same position as before – no new certificate necessary.



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This paper should “live”

If there is need for addition please send photographs and proposals (we need more positive solutions!) with text to Richard Kaiser by mail:

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