Homologation Form CHECKLIST for Design, Construction and Re-/Homologation of Ski Jumping Hills According FIS-Rules

V 2021 / 08-01

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ICR 414.3.	**hill inspector**	☐) inspection reports during design and inspection - NAME OF INSPECTOR ☐) decision of Sub Comittee Jumping Hills - date of protocol of Sub Comitee Jumping Hills, where Inspector has been named	**for new hills and reconstructed hills**

TOP according ICR or NORM	**TOP**	**question / topic**	**new hills = reconstructed hills**
	GENERAL		
411.2.	naming of design data	☐) Correct naming	**for new hills and re-homologation**
411.1.	classification of the hill	☐) Correct classification ☐) K-point and HS-point in correct position.	**for new hills and re-homologation**
general	if changed after last inspection - year of last change of the hill	☐) short description, what parts of hill have been changed	**for reconstructed hills**
	inspection 5 years before	☐) last inspection, name of inspector at this date ☐) have all demandments of last inspection been fulfilled	**for re-homologation**
414.1.1	acceptance of design by Sub-Comittee-Jumping-Hills and of logistical aspects by Jumping Committee	☐) Approval by the Chair of the Sub-Committee of Jumping Hills Hills ☐) Confirmation of Jumping Committee of logistical and organisational aspects ☐) metorological study required as well	**for new hills and reconstructed hills**
414.2.1	check of the profile by a professional survey agency	☐) the correctness of the plans as built must be verified by an authorised professional survey agency	**for new hills and for reconstructed hills**

415.5.	measuring devices available at the hill	available at the hill: ☐) a 50 m measuring tape ☐) a hydrostatic balance (digital level) ☐) a balance bar ☐) a goniom ☐) a thermometer ☐) a metric tape measure (minimum 3 m)	**for new hills and re-homologation**

DATA TO BE MEASURED BY INSPECTOR (at least random sample for checking surveyors´s data)

411.4.	data t, s, b1, b2, bK, bA	☐) Inrun b1 = 1.5 m for w < 30 m b1 = 1.0 m + w/60 for 30 m ≤w ≤ 74 m b1 = 1.5 m + w/100 for 85 m ≤ w ≤ 99 m b1 = 2.50 m for w > 100 m to maximum of 25 cm more than these values. ☐) t = ? ☐) s = ? ☐) b2 >= 0,06 w ☐) bk >= 0,20 w - SFH: >= 0,18 w ☐) hills constructed before 1992 (without change since then) bK >= 0,19 w ☐) bA >= 0,22 w - SFH: >= 0,20 w	**for new hills and re-homologation**
	inrun: alpha, e1, es	re-homologation: compare measured data with last report of TDA new hills: compare with measurement of surveyor and/or measure yourself ☐) alpha = ? ☐) e1 = ? ☐) e2 = ?	**for new hills and re-homologation**
411.3.2.4.	length of outrun, inclination of outrun	☐) calculating additional length of 15 m for summer mats and - if existing - inclination of outrun formula according NORM ☐) length of outrun (beginning at U) = ? ☐) inclination of outrun (upwards is minus angle) =?	**for new hills and re-homologation**

INRUN

411.3.1	description of inrun - r1 formed as clothoide or as circle	☐) inrun with r1 as circle radius ☐) inrun with clothoide	**for new hills and re-homologation**
411.5.1		☐) height of starting gates, max. 40 cm ☐) width of starting gates ☐) distance between starting gates ☐) lowest starting gate is designated as start gate number 1. ☐) compare with measurement of last report of TDA	**for new hills and re-homologation**
		☐) 0.5 m in height ofsideboards above snow surface ☐) minimal placement of the guardrails from the start till 1m from the edge of takeoff ☐) distance between guardrails and prepared b1 width should not exceed an additional 25 cm in overall width.	**for new hills and re-homologation**
		☐) no protrusions (sharp-edged screw heads / irregular shape parts), only gaps and openings with a maximum width of 15 mm are allowed (exception: 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.	**for new hills and re-homologation**
		☐) it must be prevented to lead inrun in a trough (good sight from coaches´ stands to athlete in inrun, as well from judges´ tower)	**for new hills**
415.2	inrun speed measuring	☐) beginning of measuring distance 10 m before edge of table (seen in direction upwards) and ending 18 m before edge of table ☐) distance between photocells 8 m ☐) photocell´s beam must be situated 0,2 m above profile (attention - difference between summer and winter)	**for new hills and re-homologation**

KNOLL

417.2		☐) snow cover for plastic hills is 35 cm above the mats ☐) snow cover for a hill without mats 30 cm ☐) If the inrun tracks are the same in summer as in winter, the difference in profile height must be taken into account. The smaller the hill, the greater the impact.	**for new hills and re-homologation**
411.5.2.	landing area	☐) From the bottom of the take-off, the entire designed width of the landing slope must be prepared with snow ☐) No obstacles are allowed in the prepared area and movable devices must be removed when the hill is in use ☐) Placement of guardrails on both sides of the landing area is required for the safety of a fallen jumper or stopping of a runaway ski ☐) Guardrails shall be minimum 70 cm high above the prepared snow profile ☐) Placement of guardrails on the landing shall start from 0.1 w to the end of the transition curve ☐) The upper end of guardrails must run into the slope horizontally or end with a quater-circle radius 0,7 m (and sharp edges covered with soft material) ☐) no protrusions (sharp-edged screw heads/irregular shape parts) ☐) only gaps and openings with a maximum width of 15 mm may exist ☐) The snow profile height as well as the distance markers (paddles) should be marked on the guardrails ☐) the guardrails must be parallel to the landing slope profile. ☐) 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. Nets are not allowed ☐) Guardrails constructed in concrete have to be padded with minimum 3 cm permanent soft material on the inside of the landing area.	**for new hills and re-homologation**
404.2.1.	area of Distance Measurers	☐) Check correct position in design and as built	**for new hills**
404.2.2.	place of the Distance Recorder	☐) Check correct position in design and as built	**for new hills**
415.1.	jumping distance markings	☐) no sharp edges and protrusions	**for new hills and re-homologation**
417.3.	marking on landing hill	☐) correct according regulations ?	**for new hills and re-homologation**

JUDGES´ Tower

411.5.4	judges tower	☐) width of judges´compartments min 1 m, depth 1,2 m ☐) q and d correct according NORM ? ☐) height above landing area in a way, that good sight to table and landing zone is possible? In phase of design the sight of judges has to be proven by a 3d-visual-beam simulation for judge A and judge E.	**for new hills**
	judges tower - chief of competition and other competition officials	☐) no mutual distructions and interferences, good sight to jumping hill	**for new hills**
	one shared judges tower for two hills	☐) demandment fulfilled ?	**for new hills**
	COACHES		
411.5.5	coaches´ stands	☐) For jumping hill facilities, where international competitions are to be organised, coaches must have two suitable stands (for 20 persons each). ☐) One stand should be in the area near the edge of the takeoff and the second should have an unobstructed view of the portion of the jumpers flight and the landing ☐) For OWG, WSC and WCS events, coaches' stands for 40 coaches must be available.	**for new hills**

OUTRUN

411.5.3	outrun	☐) Guardrails with a height of at least 1 m above the snow profile must be mounted away from U around the entire outrun area until the exit gate in a stable manner, so that they are able to fulfil the function of guardrails for fallen athletes and loosened skis. Transition from guardrails 0,7 m height to guardrails 1,0 m height without sharp edges. ☐) Guardrails must be constructed in accordance with art. 411.5.2 “The Landing Area” as follows ☐) the entire designed space between the guardrails must be prepared with snow ☐) No obstacles are allowed in the prepared area and movable devices must be removed when the hill is in use ☐) no protrusions (sharp-edged screw heads/irregular shape parts) ☐) only gaps and openings with a maximum width of 15 mm may exist ☐) The 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. Nets are not allowed ☐) Guardrails constructed in concrete have to be padded with minimum 3 cm permanent soft material on the inside of the landing area. ☐) Temporary solutions are possible and must be constructed in accordance with art. 411.5.2 “The Landing Area”. No nets allowed.	**for new hills and re-homologation**

SNOW PREPARATION

417.1.	snow preparation inrun and takeoff	☐) snow depth of minimally 20 cm, except specially constructed inrun tracks are used ☐) The tracks must be prepared with the help of technical equipment (a track cutter, track plane or inserted profile boards or something similar) ☐) Distance between both centres of tracks for Jumping hills with w over 75 m: 30 – 33 cm ☐) Width of track: 13.0 – 13.5 cm ☐) Depth of track: at least 3 cm for normal, large and flying hills. The following regulations are valid for OWG, WSC, SFWC, JWSC and WCS events: ☐) In winter, the in-run tracks must be prepared with artificial snow, ice or in exceptional cases artificial material (i.e. china) ☐) The in-run tracks prepared with artificial snow or ice have to be supported by a cooling system. The tracks have to be made by track cutters. ☐) It has to be assured that surface water caused by rain or warm weather can be drained from the track. A device for covering/sheltering inrun tracks should be foreseen ☐) Snow preparation machine of inrun: Is there any dangerous parts at the tracks? Is mounting of machine OK? Is there a TÜV-certificate (or similiar certificate) ?	**for new hills and re-homologation**
417	snow preparation	☐) snow making concept (incl. stands of snow making machines, power supply) ☐) water source and water supply ☐) pump rooms ☐) hydraulic design ☐) capacity of snow making machines, ….) ☐) height of snow at natural surface 30 cm, at mats 35 cm	**for new hills**
417.2.	snow preparation landing slope and outrun	☐) Thickness of snow layer min. 30 cm, at hills with plastic covering min. 35 cm ☐) are there enough fixing points for preparation machines? ☐) If there is a snow fixing grid / snow net: Is there a statical design for snow fixing grid, concerning weight and dynamic forces of machines?	**for new hills and re-homologation**

PLASTIC MATS

412	plastic mat covering	☐) design and as built according "bau-mattenschanzen-2017" available in English and German at FIS-homepage ☐) This standard should be applied, which was valid during construction of jumping hill (difference in rules !). Old hills with a grass area between mats and sideboards of knoll (according rules before ca. 1992) may be left in this condition, if grass is kept short and if there is no changing of profile or mats). ☐) Overlap of mats minimum at least 17 cm, +/- K 20% at least 22 cm (at NH and LH) ☐) sub-construction of mat covering ? ☐) supplier / brand of mats ☐) year of installing new mats	**for new hills and re-homologation**
414.2.2.	plastic mats	☐) only homologated mats shall be installed ☐) is there enough water for sprinkling through a competiton? ☐) is there a hydraulics design for water system? ☐) are there filters before spraying nozzles? ☐) are alle mats covered by sprinkling? ☐) is there no obstructing nozzles? ☐) Is there overlay of mats as demanded by regulation ?	**for new hills**
bau mattenschanzen 2017	artificial inrun	☐) supplier / brand of inrun track ☐) year of installing ☐) width of track (max. 13,5 cm) = ? ☐) distance between centre of tracks (w over 75 m - 30 - 33 cm) = ? ☐) depth of tracks (min 3 cm for NH, LH and SFH) = ? ☐) safety zone besides the tracks ☐) irrigation elements of tracks ☐) heating for winter operation available ?	**for new hills**

SKI FLYING HILLS

413	ski flying hills	☐) fulfilling special and particular rules ?	**for new hills and re-homologation**

INFRASTRUCTURE

411.5.6		**For OWG, WSC, WSFC, JWSC and WCJ competitions, the infrastructure re-quirements are regulated in the FIS "Matrix for Infrastructure Jumping Hill", available in the document library of the FIS Website.** **This document is an appendix to "Inspection Report" as well**	**for new hills and re-homologation**
---	mechanical lift for OWG and WSC events	☐) capacity of lift /funicular etc. sufficient for training and during competitions ? ☐) It must be taken care, that lift does not cross TV-pictures during competitions!	**for new hills**
416.1.	information for spectators	☐) loudspeaker system (incl. place for the speaker with good sight to the competition) ☐) place of scoreboard	**for new hills**
416.2.	media representatives	☐) places for media representatives ☐) is there enough TV-camera stands with good sight to inrun and landing area ? ☐) Power supply ?	**for new hills**
---	night competitions	☐) is there a lightening concept ? ☐) Power supply for lightening ? ☐) Is there an emergency power supply system ? ☐) What measures are forseseen, that in case of brakedown of power supply an athlete just jumping in the air is not flying in the dark ?	**for new hills**
---	environment and other general demandments	☐) Have all demandments of National Environment Protection Authorities been fulfilled? ☐) Is there a geological survey before beginning of design / erection ? ☐) If in an earthquake zone - is statical design taking care of this fact, as well for all earth dams, excavation works etc. ?	**for new hills**
---	power supply	☐) How safe and secure is public power grid ? ☐) Is there an emergency power supply system ?	**for new hills**
---	crowd managing system, access system, security concept	☐) Is there a crowd managing system to avoid accidents in case of panics ? ☐) are there measures to avoid overcrowding ? ☐) Is there an access systen and/or security concept	**for new hills**