

Health and Safety Executive		Sector Information Minute	
Commercial and Consumer Services, Transportation and Utilities Sector (CACTUS)		SIM 05/2003/11	
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Target Audience:
 AFQ Inspectors
 Specialist Group Inspectors (Mech Eng)

HEALTH AND SAFETY IN SKI SLOPE OPERATIONS

This SIM alerts inspectors to the publication of new HSE guidance on ski slope operations and updates the information contained in SIM 5/2001/12, which should now be cancelled

BACKGROUND

1 SIM 5/2001/12 gave general information on safety at artificial ski slopes and indicated that further guidance was in preparation. This guidance has now been published as booklet **INDG371 *Health and Safety in Ski Slope Operations*** (file 331). This SIM updates previous information.

2 The term skiing is generally used in this SIM but this encompasses snow boarding and snow blading.

NATURE OF THE INDUSTRY

3 There are about 80 dry ski slopes and two 'real snow' indoor slopes in Great Britain. The newest wet snow slope opened in Milton Keynes in October 2000. Further wet snow developments are planned round the country. Most sites are independently run, although some are owned and operated by local authorities (LAs). The design of each slope is unique and some differences in operating practices are therefore understandable however health and safety standards also vary. There are five natural snow slopes, all in Scotland.

4 Use of the slopes is highly seasonal and peaks in the late autumn/winter months.

The operation of the natural snow slopes is very weather dependant, they can operate from as early as November to as late as early summer. The majority of staff are likely to be part-time, seasonal employees and there may be significant staff turnover. Staff training and supervision are therefore very important. Induction and refresher training is required for all staff, including instructors.

5 Each site is likely to provide ski and snowboard instruction and 'open' practice, ie full use of the slopes to competent users. Some sites may also offer tobogganing, bobbing and sledging and may have purpose designed runs for these activities. Inspectors should note that some sites may have tracked rides installed as part of the facility. These are items of fairground equipment and should be treated accordingly by operators. Inspectors may wish to contact the sector in such circumstances or discuss the matter with one of their division's nominated fairground inspectors.

6 Purpose made jumps (known as 'fun-boxes') may be available for use by snowboarders. Some slopes have contoured features for skiers requiring a higher standard of skill. It is important such features are not used by inexperienced customers and that their use is supervised.

ENFORCEMENT ALLOCATION

7 Ski slopes may be part of premises for which the LA is the enforcing authority (eg hotels, sports parks and entertainment centres). However, HSE retains responsibility for any activity in relation to a ski slope, ski lift, ski tow or cable car by virtue of the Health and Safety (Enforcing Authority) Regulations 1998 reg.4(4)(b) and schedule 2 para 9. It would normally be inappropriate to agree any transfers to LAs in view of public concerns over safety at such sites.

8 A number of sites may be run by private clubs and societies. **OC 331/3** provides advice on the application of HSW Act s.4 at such sites.

BRITISH SKI SLOPE OPERATORS' ASSOCIATION (BSSOA)

9 Approximately half of the country's ski slope operators are members of the BSSOA.

10 The BSSOA has worked with the Food and Entertainment Sector in the preparation of the new guidance. The guidance represents good practice and is agreed with the industry as being reasonably practicable.

OTHER GUIDANCE

11 Artificial Ski Slopes and Centres (data sheet 20, Sports Council, 2nd ed, 1990) is

widely known throughout the industry. It describes current practice in the design and management of artificial ski slopes. A slightly updated version of the same information has appeared in the Sports Council publication as Artificial Ski Centres pages 113-118 in Handbook of Sports and Recreation Volume 1 Outdoor Sports (1993, 2nd ed), available from Butterworths publications.

12 *Artificial Ski Slopes and Centres* (data sheet 20) has illustrations of slope layouts. An adequate deceleration area at the base of a slope is needed. Beyond the flat deceleration area at the lower end of the slope there may also be a short upward slope ('counterslope') to aid deceleration. Illustrations in data sheet 20 show a flat area, 10 m in length, at the base of a slope followed by a further counterslope of 5 m.

13 Some slope designers and operators have used the above dimensions as minimum safety dimensions. Slopes may have been constructed to these minimum dimensions **and** also have barriers at the top of the counterslope. This type of layout was not included in the data sheet. In fact an additional run-out area beyond the counterslope is illustrated in one of the diagrams. It appears that, whilst deficiencies in data sheet 20 are generally recognised, it is unlikely a revised edition will be published.

14 Inspectors should therefore examine critically the standard of the construction and padding of any barriers placed at the end of any slopes built to near these minimum dimensions (see para 17).

15 Experience has shown that older ski tow equipment may well be poorly guarded. There is guidance on some options for guarding in INDG371. Due to the differences between tow systems and their locations, it is not possible to give specific guidance in the leaflet. Inspectors who consider a tow to be inadequately safeguarded should consult their specialist group mechanical inspector for advice.

KEY ISSUES IDENTIFIED IN PREVIOUS INSPECTION VISITS TO ARTIFICIAL SLOPES

Location of reception

16 Customer reception and equipment issue is normally at the bottom of the slope. At such sites users then need a certain amount of skill to negotiate ski tows and lifts to access dangerous parts of the slope. Some sites which have reception at the top or middle of the slope have been remodelled to provide paths so users are initially directed to the base. Where this is not the case then users should be advised to walk to the base and ski the lower portions of the slope before skiing the full length (both to warm up and familiarise themselves with the slope surface).

Deceleration area and run-out

17 There should be an adequate deceleration area and run-out at the base of the slope which may incorporate a counterslope. On anything other than nursery slopes the overall length of the deceleration area and run-out should be no less than 15 m.

Protection of fixed objects

18 Barriers and other fixed objects which skiers may impact against should be avoided, wherever practicable, during slope design. If they cannot be moved, adequate protection (by the use of nets, padding or other methods) is essential. Barriers at the ends of slopes are typically made of wooden corral-style fencing, faced with plywood and protected by foam. The site operator's risk assessment should cater for the worst-case scenario of a skier losing control at or near the top of the slope and 'straight-lining' down the slope. The Health and Safety Laboratory (HSL) suggest that to prevent serious head injury the maximum deceleration force should be no more than 20 g. The thickness of any padding will depend on various factors including the size of the deceleration area, the possible impact speed of skiers and the nature of the foam. Provision may need to be made for the fronts of skis to pass under padded barriers so that the body of a skier can make contact with the padding and come to a controlled stop, rather than having the skis brought to a halt and the skier's body thrown forward with a significant risk of injury. Site operators can obtain suitable padding from sports and gymnasium equipment suppliers. The selection of protective measures is complex and the advice of a competent person should be sought by operators. If foam is used, it will deteriorate over time and should be subject to appropriate inspection.

Competency assessment

19 Customers who lack the necessary level of skill are a danger to themselves and to other users on the slopes. Operators should have clear, documented systems to confirm all users are competent to use the slopes. Some sites may recognise different levels of competence and restrict use of parts of the slopes accordingly. All sites should have systems in place whereby all users confirm they meet the required standards.

Young persons

20 Children and adolescents may overestimate their own abilities or try to circumvent any entry procedures. Most sites require all persons under 16 to be 'signed in' by an adult, or to demonstrate their level of competence, before being allowed full access to the slopes.

Maintenance activities

21 Work at height will often be necessary to carry out maintenance checks and repairs to ski lifts and to lighting pylons. Ski lift pylons often have poor or no suitable work platforms and systems of work to prevent falls will be required. Lighting pylons can be designed so they pivot over to allow bulb changing/cleaning, etc. Control of contractors is important and site operators should confirm maintenance and other contractors follow safe systems of work. Some activities may warrant the use of a written safe system of work or permit to work.

Slope inspection and maintenance

22 Regular inspection and maintenance of artificial slopes is required to ensure they remain in good order. It would be normal practice for all artificial slopes to be checked each day for damage, presence of debris etc. There may be a need for regular control of weed growth on some slopes. All operators should have the tools and supplies on hand to secure mat sections and edges. They can also be expected to have some complete mat sections available to replace badly damaged areas. Artificial surfaces have a finite life and should be renewed before they pose a danger to users.

Accident investigation

23 It is accepted that there is an inherent risk of injury when participating in snow sports. Sites should be able to demonstrate effective investigation techniques which should be able to identify underlying causes and feed back into improvements to risk assessments and/or operational procedures. Several sites have installed video surveillance of the slopes to help in slope supervision and accident investigation.

Security

24 Some accidents have occurred to members of the public who have gained access to the sites after working hours and have used signboards, trays, etc to slide down the slopes. Sites should be encouraged to have perimeter security to deter trespassers.

ACTION BY INSPECTORS

25 Relevant FMUs may wish to ensure that all dry ski slopes are registered and administrative staff may be used to confirm this is the case. When inspectors make visits to ski slopes, whether on a proactive or reactive basis, they may wish to rate the incumbents in the light of this SIM and relevant priority programme topics such as falls from height, slips and trips. This applies to both new and existing incumbents.

26 The Health and Safety Laboratory can provide advice to support enforcement

action if there are concerns over the standard of run-out or barrier construction or protection.

INFORMATION

27 Inspectors wishing further information should contact the Food and Entertainment Sector, Entertainment Section at the Glasgow Office, telephone 521 3012.

Cancellation of instructions

28 SIM 5/2001/12 **cancel** and **destroy**.

Date first issued: 21 February 2003