



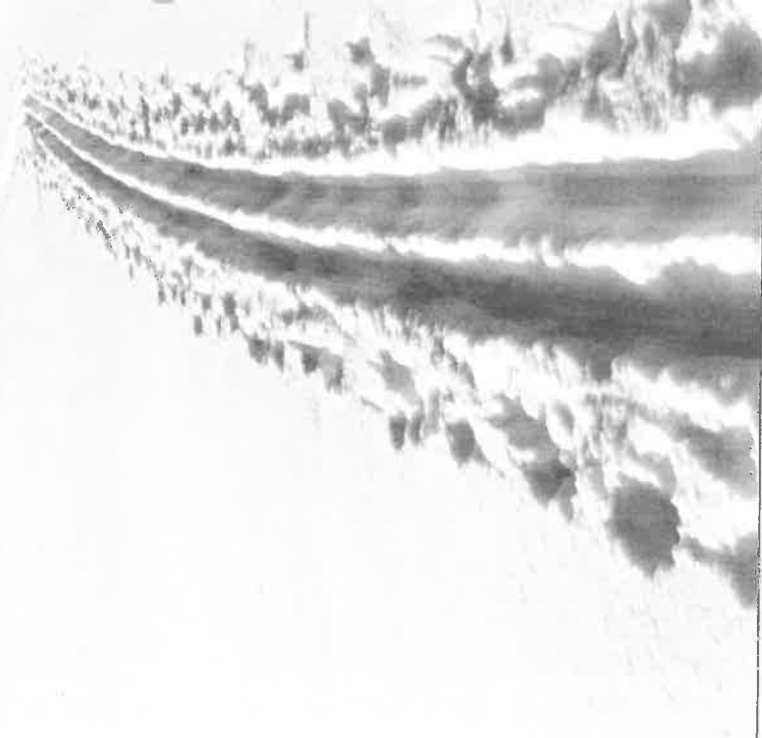
THE Central Zone

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FRESH TRACKS TO
THE FUTURE



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TERRAIN PARK FEATURE HANDBOOK

By Chuck Roberts and John Roberts

Terrain parks are a big deal at most snow sports areas because of demands by snowboarders and skiers to experience a variety of features during their visit. If you are teaching freestyle in terrain parks, you may be approached periodically by the area management to advise on terrain park feature design and how to make a park more interesting to riders. Although many large resorts have terrain park designers on staff, many areas do not and often rely on the snowboard staff for input. After all, you are a skilled rider, you use the park and you teach students how to use the park, ergo you are an excellent in-house consultant. Panicked? Don't be. The following is a primer on the ins and outs of terrain park features, maintenance, management and park layout.

RAILS

Rails have their root in skateboarding where skateboarders would ride and grind on a rail similar to a handrail on stairs. Early snowboarders used fallen or bent-over trees as natural rails. As terrain parks developed, manufactured rails in several sizes, shapes and cross-sections became predominate.

Figure 1 illustrates the variety of rail cross-sections. The single tube rail (Figure 1A) appeared early on and was often made of a ductile steel or plastic pipe ranging from 3 to 6 inches in diameter. This rail is tough to ride since there are no flat areas to stabilize the board. The double barrel tube rail (Figure 1B) allowed for easier riding since it was flatter, and a snowboard was less likely to tip. By far, the most popular rail is the rectangular steel tube design (Figure 1D): usually a 2" by 4" or 2" x 6" tube. Sometimes, as a substitute, the steel channel rail (Figure 1C) is found, which tends to be identical on the upper surfaces but has a different support structure. Figure 2A shows a classic, intermediate, steel straight rail with gap-on ramp. Figure 2B shows another classic design where the rectangular tubing at the entry and exit is bent down. This design is easier for your beginning park riders, as the feature requires a less precise takeoff and dismount.

Figure 3 shows some of the ins and outs of terrain park rails. Ramps can be either gap-on or ride-on. The ride-on ramps are easier for your timid beginning park riders, but once they get the hang of grinding, then the gap-on is preferred. Eye the arc of the gap-on ramp to make sure your students, traveling at moderate speeds, can take off and land on the rail without difficulty. A worn down ramp may not give enough lift for your students, necessitating moving on to another feature and notifying management. Most rails have a beveled (rounded) entry and exit to reduce the chance of damage to the bottom of the snowboard, especially for

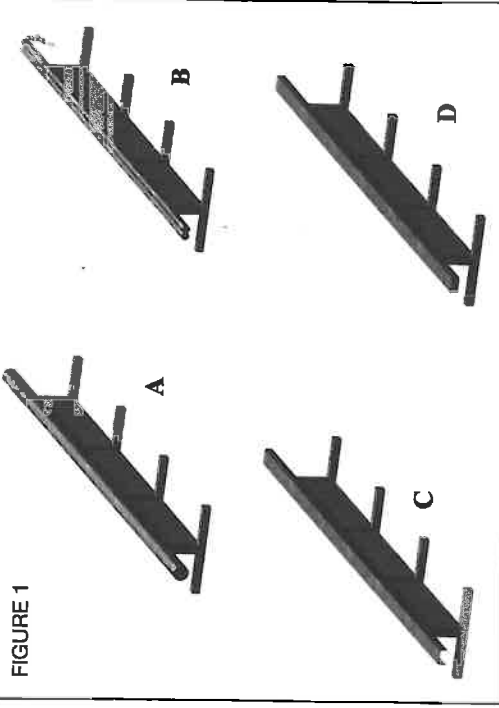


FIGURE 1

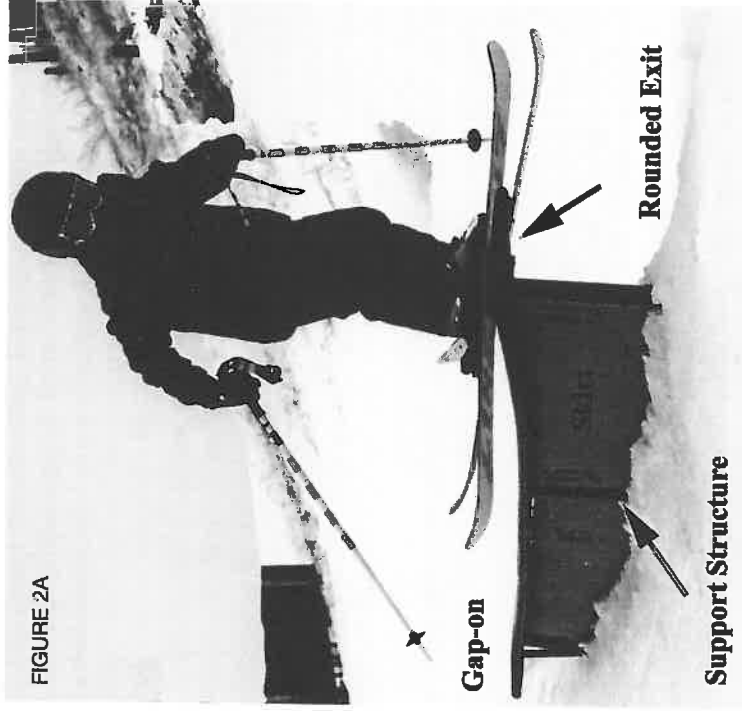


FIGURE 2A

Rounded Exit

Support Structure

riders mounting the rail slowly, and who do not ollie off the end (Figure 2B and Figure 3). In the past, some riders have also beveled the edges of their snowboards or skis to facilitate board slides and reduce the chance of engaging an edge on the feature. Some boards are also designed with beveled edges for grinding on various terrain park features. Rail features

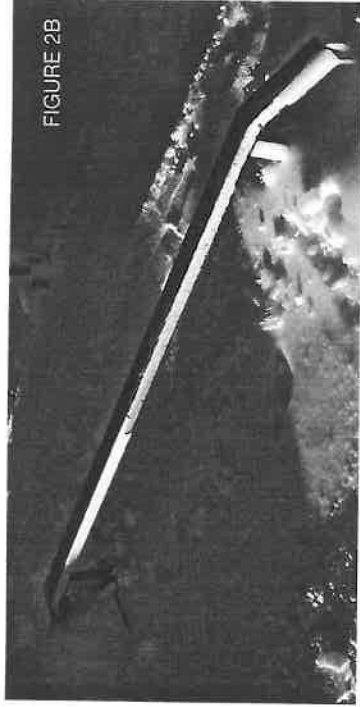


FIGURE 2B

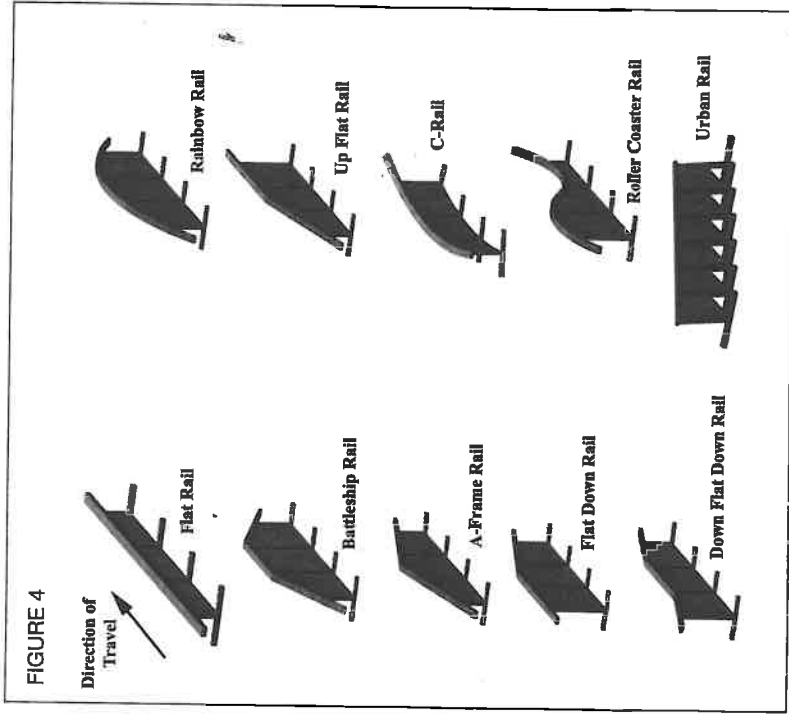


FIGURE 4

Rail Design		
Length	Height above snow	Skill
10'	1'	Beginner
20'	2'	Intermediate
30'	3'	Advanced

FIGURE 3

BOXES

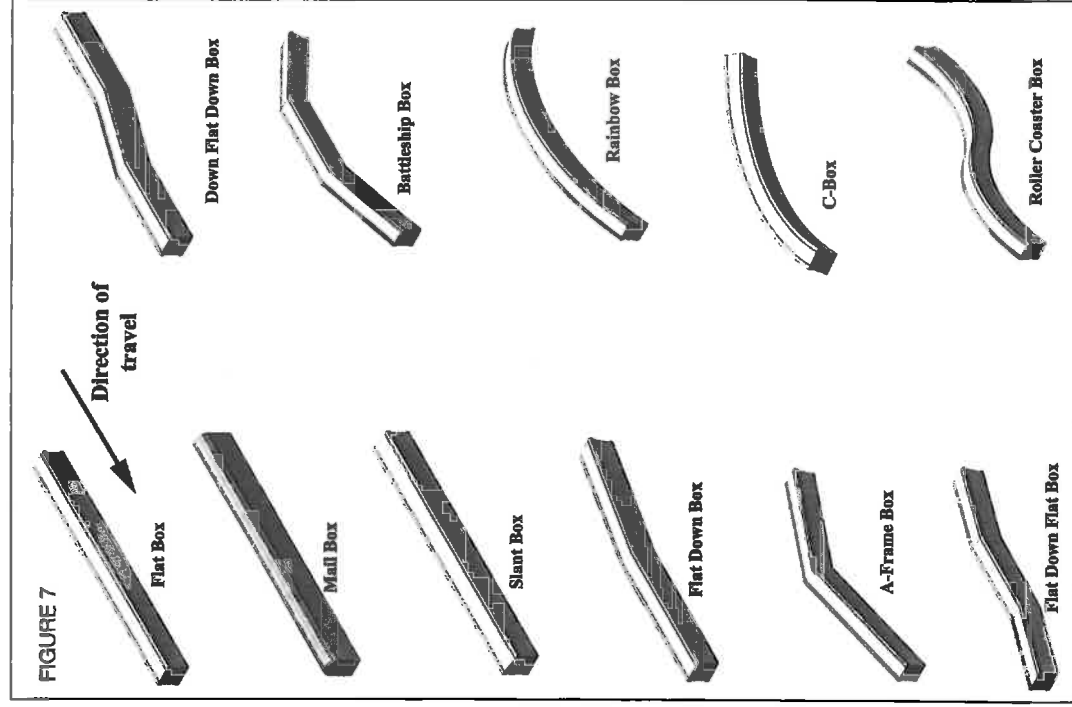
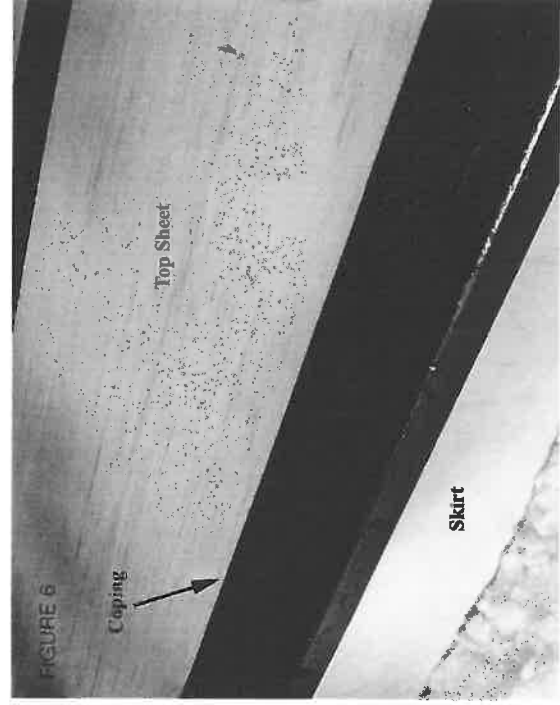
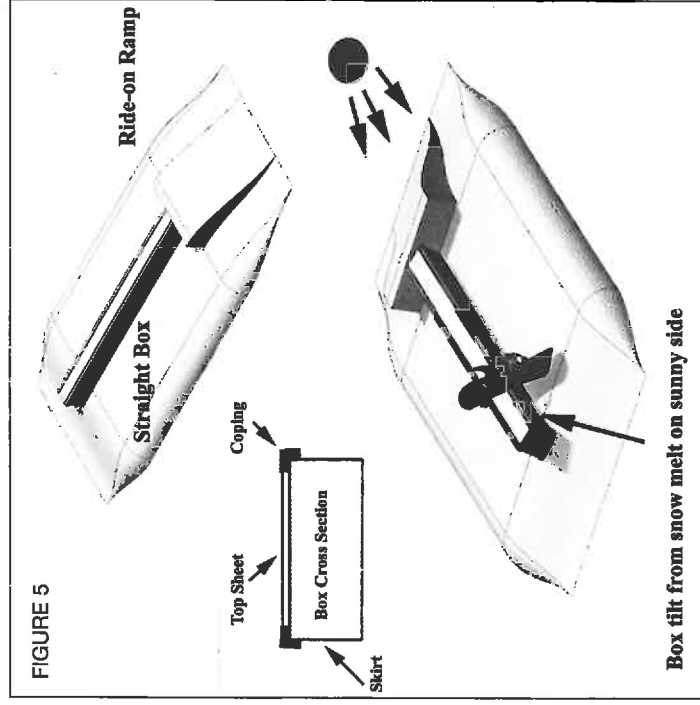
Boxes are fun features for both beginning park riders and experts. Figure 5 shows typical construction of a flat box which includes a top sheet, coping and the basic box structure. The top sheet is usually a wear resistant polymer (plastic) such as nylon or polyvinylchloride and is secured to the box structure. The coping acts as wear resistant corner, usually constructed of steel. The skirt can be plywood or plastic sheet as it usually covers the box structure and internal parts.

Boxes are usually pretty stable features, but under certain conditions the sun can shine on one side and melt the snow on that side, causing the box to tilt. It is helpful to check out the features prior to your lesson, since one that is not level may add to teaching difficulties, especially for your beginning park riders. As always, report to management any deficiencies you find. Another way to tell if a feature is not down the fall line, or is tilted, is by looking at the landing area. If the landing area is not along the long axis of a straight feature, then there is a possibility that it is either tilted or not down the fall line.

may need periodic grinding of burrs that form during usage. Some riders will mount a rail on edge, which can cause a burr in the steel that may affect the riding of others. Burrs may not only damage the running surface of the snowboard or skis but can cause additional drag.

Figure 4 is a sampling of the variety of rails found in many terrain parks. Most rails should be installed with the long axis down the fall line to preclude the tendency to slide off one side or the other that can occur on rails that are not placed along the fall line.

Figure 6 is a close-up view of a typical box, showing steel coping and white polymer top sheet. Notice the nicks on the steel coping from riders, which is a normal result of usage. Figure 7 is a sample of typical boxes found in many terrain parks. The use of boxes in your terrain park lesson plan gives you great flexibility in your teaching, since both your begin-



ning and advanced park riders can try out new moves on a forgiving feature. From our experience, it is not unusual that some in the class may be working on crooked grinds, while others are performing 720's on a box.

Figure 8 shows a picnic table feature, which has a base structure similar to that of a rail, but a riding surface that mimics a box. The advantage of this design is that they are easier to manufacture and easier to move around. On the flip side, they may become wobbly after repeated usage, depending on how the support structure is planted in the snow. "Picnic tables" can be manufactured wider than typical boxes, which is a big plus for your beginning park riders, as it is more forgiving of an imprecise line up with the feature.

JUMPS

Jumps come in a variety of shapes but have many common attributes, as shown in Figures 9A & 9B. Most jumps have a roll-in to build up speed for the jump. The ramp guides the rider up to the lip, which has a major effect on the type of trick performed. The ramp angle varies from 25 to 30 degrees, as does the landing area. A mild lip is great for beginning park riders and helps them gain confidence without the compression feel from more radical lips, which may be frightening early on. A moderate lip is good for rotary moves such as 360's and 540's. The radical lip is good for big air moves such as corks and flips.

The table top jump (Figure 9A) is a common beginning jump, while the step down design (Figure 9B) is usually set up for the intermediate and advanced freestyle/er. A step down makes a more efficient use of snow,



FIGURE 8

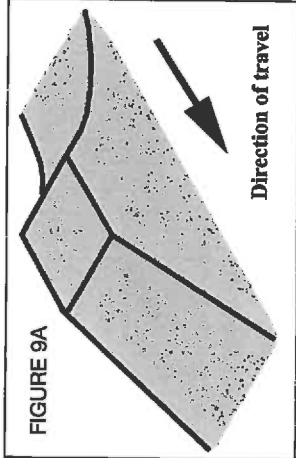


FIGURE 9A

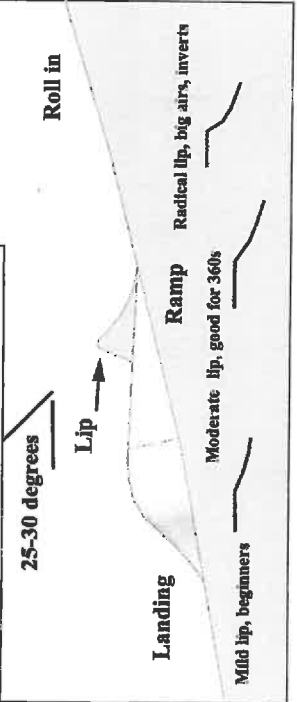


FIGURE 9B

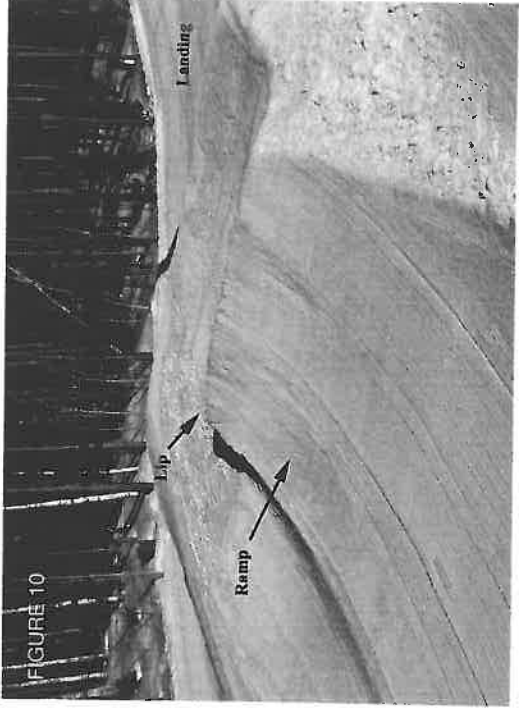


FIGURE 10

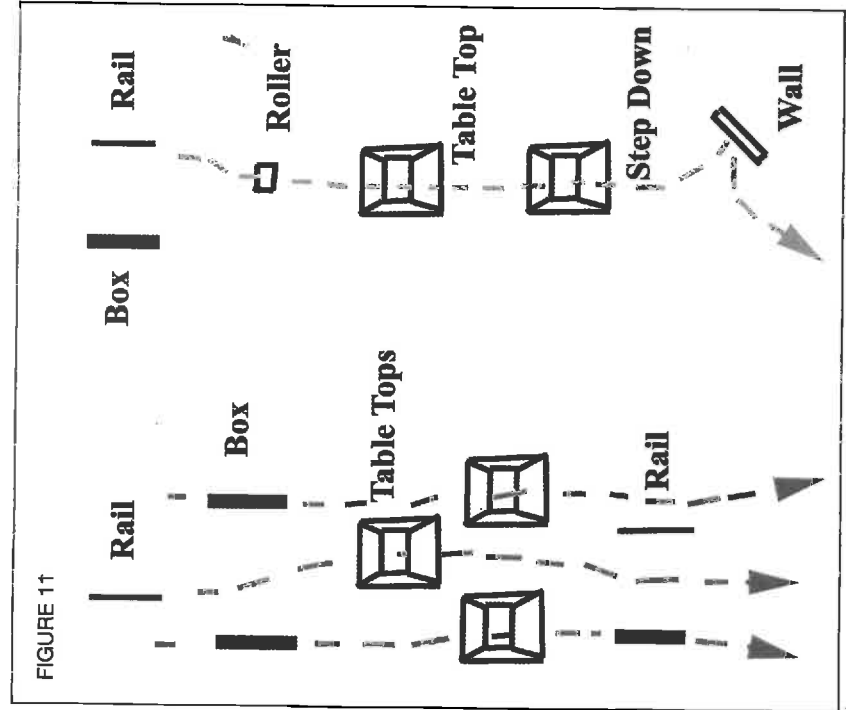


FIGURE 11

since it takes advantage of the slope of the hill, yields more air and requires less snow than a table top.

Figure 10 is a view of a nice grooming job on an intermediate step down jump, showing a smooth, uniform approach ramp, culminating in a moderate lip that should yield some nice air for rotary moves. The landing area is approximately the same down angle as the takeoff angle. Taking your students over small rollers helps them gain confidence for the further flight distance required in this jump. Check the lip periodically to make sure your students can handle it. Meet with the park grooming staff with any suggestions you may have as to improving the jump performance. Perhaps salting the lip area (on warm days, above freezing) or occasional shaping will help it retain shape longer during heavily used periods.

FLOW THROUGH A TERRAIN PARK

Your student's journey through the terrain park should be exciting, varied and interesting, ie, good flow. There is a diversity of opinion on what good flow is. While learning a new move, a rider may be focused on one feature and may not be interested in the relationship of the features to each other. This rider may be hiking the feature, or may prefer a greater approach distance for setup. **On the other hand, a rider who is jibbing the park** may be interested in putting together a smoothly flowing run that

uses multiple features. On the terrain park shown on the left in Figure 11, several runs are required to hit most of the features. The park shown on the right has features laid out such that the rider can hit many features in one run (jibbing), and there is adequate preparation distance between features. The park to the right has flow. Varying the location of features, or swapping out different features from day to day, also makes jibbing the park more interesting to your students.

Several aspects of terrain park management and design have been discussed with emphasis on assisting the park instructor on the ins and outs of what it takes to have a great lesson in the park. Management may be looking to you for advice on what riders like in the park and is interested in feedback from you on how your students liked the experience. Park

layout is evolving rapidly with many new features and design ideas being developed each season, so keeping up your knowledge base makes you a better instructor and a more sought after employee of your snow sports area. The Park and Pipe Instructor's Guide from PSIA and AASI gives more information on terrain park instruction.

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Mt. Brighton is pleased to announce the expansion of the Ski and Snowboard School. Mt. Brighton will be adding a new children's learning center this season, along with several exciting new programs.

Vail Resorts purchased Mt. Brighton during the 2012-13 season and committed over \$10 million in improvements to be completed before the start of the 2013-14 season. Mt. Brighton will be enhanced with new lifts, state of the art snowmaking, redesigned and updated terrain parks, best-in-class coaching and instruction for all levels of skiers and riders, dedicated racing programs, and integrated technology programs like EpicMix and Direct-to-Lift ticketing options.

With these improvements, the Ski and Snowboard school will be increasing our staff. If you are interested in being a part of the new Mt. Brighton, please contact us at ljoppin1@vailresorts.com or come to our orientation meeting October 20, 2013, at 11:00 a.m. at Mt. Brighton.