

FROM GOLF COURSE TO



Originally developed by a syndicate headed by the late newscaster Chet Huntley, Big Sky Montana is one of the most outstanding golf and ski resorts in the country and is owned by Boyne U.S.A. The golf course was designed by Francis J. Duane with Arnold Palmer as advisor and consultant.

MOUNTAIN TOP

Every year, when nature paints the northern regions of the United States with dollops of snow and many people mistakenly believe that winter is hibernation time for golf course superintendents in these regions, the truth is that these people are far from idle.

There are those who get into “cool season” projects such as course construction, equipment renovation, deciduous tree pruning, transplanting, snow removal or other endeavors — but none quite as invigorating, strenuous and rewarding as that undertaken by Doug Kremer, golf course superintendent at Big Sky Montana.

For Kremer, a new GCSAA member, the first frost is just a harbinger of activity just as intense as the months he has concluded, caring for his golf course. It is time to don another cap. It is time to take to the mountain top in his winter role as part of a team responsible for management at one of the top ski resorts in the country.

And Kremer doesn't have to travel far to work at his winter job — Big Sky is a golf and ski resort rolled into one, with the 11,166-ft. Lone Pine Mountain serving as a dramatic backdrop for the picturesque Big Sky Golf Course.

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James G. Prusa
Director of Education, GCSAA

So, with his head literally in the clouds, Kremer continues to address responsibilities related to the golf course, but his real role is that of Avalanche Coordinator and member of the Big Sky Ski Patrol.

The job has all the challenges of maintaining Big Sky's 18-hole championship golf course, but the setting is quite different and the excitement can definitely hit a very high pitch.

Listening to Kremer describe a day in his life during these months of winter splendor is enough to get you caught up in the thrills, the dangers and the importance of his job.

"After a night snowfall," Kremer says, "I'll get called at 4:00 in the morning, for example, with a report that we've received six inches of new snow with a 20 mph, southerly wind that's been blowing for about two hours. This tells me that we'll have loaded pockets of snow on the lee side

"After the charges are distributed, we'll proceed in teams of two and ski out across the face of the mountain. Two people go forward at a time and hand throw the charges into suspect avalanche areas. The other two will remain behind as backup and must be ready, in case of an avalanche, to go in and dig the other two up in a matter of seconds. Every member of the team carries a walkie-talkie radio and an emergency avalanche beeper that will help to locate an individual buried under tons of snow.

"This area at Big Sky has been designated as one of the most dangerous avalanche routes in North America. Yet we have a perfect safety record. We just don't allow conditions to develop to the point where the potential for a problem exists. The slopes are controlled on a very regular basis.

"There's no room for amateurs in avalanche control work. I've seen avalanches roar down a mountain and take out sturdy trees with 12-inch diameter trunks as if they were toothpicks. Just look at some of the disasters

"Just as important as working for the good life is finding a place to enjoy it. Big Sky has captured the spirit of the West . . . the open, friendly, relaxed atmosphere of life worth living."

—(Late) Chet Huntley
Newscaster and Montana native who
built the original Big Sky

of the mountain slopes. Such conditions are certain to set up blizzards (buzz word for avalanches) on the ski slope runs.

"This means I've got to get up and call everybody else on the patrol out and gather our group at 5:30 a.m. There are seven of us on this team of professionals which make up the avalanche control team. The regulars work during the week while a group of volunteers handles the weekends.

"After the call is made we'll all meet at the ski lodge and boot up for the ride up the mountain on the gondola. Once to the top of the gondola, two people are designated to go and get the supply of two-pound plastic explosives, which we use to trigger the controlled avalanches. One other person from the team goes with the U.S. Forest Service Ranger in order to use a 75mm recoilless rifle to literally shoot at all the high avalanche starting zones near the top of the mountain.

"When they're finished firing the recoilless rifle, the rest of the team rides up the Lone Pine Chair (the highest ski lift) to the high traverse. At the end of this chair, we climb another 400 feet up the mountain well above the chair lift. We then discern how many explosive charges we'll each carry based upon the snow conditions we find. This number will usually average about 15 charges each.

they had last year at some of the Tahoe area ski resorts. This is a life and death business and you just don't make errors!"

As Kremer continues it is very clear that the responsibilities of avalanche control are not simply a matter of skiing around the mountain tossing bombs into snowbanks. In fact, there are striking similarities between dealing with snow and dealing with soil.

"What makes my winter job so interesting is that we start out at the beginning of the year and each day we measure the moisture content of the snow. We then know how dense each snowfall is and this gives us a little bit of an idea of how well each snowfall will "bond" to the existing layers.

"What we ideally like to see, in the early season, is a nice wet, warm snow like they receive out in the maritime climate of the Sierras. That kind of snow comes down, hits the rocks or previous snow layers and just sticks!

"Our problem here is that the snow comes down cold and dry onto a warm surface. These kind of conditions coupled with cold air temperatures can result in what is called depth-thor. Depth-thor is the growing of a very fragile and unstable snow crystal.

"Of course the deeper and the longer the snow has been on the ground the more stable the conditions. This

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is the result of a less dramatic temperature gradient between the air temperature and the ground temperature. In other words, the difference between the two temperatures are spread over a greater amount of snow depth which tends to reduce the danger of depth-thor. The ideal kind of snow we try to develop in the beginning of the season is called 'T/G Snow' or temperature gradient snow. By mid season the snow pack deepens and is upgraded to an 'E/T Snow' or epi-temperature snow. This is a snow that has a very uniform temperature throughout the upper pack.

"It is a science to properly manage the snowpack to develop safe conditions. This gets a lot more complicated than what we've been talking about. In fact, we've even got to take into consideration how much weight the new snow is putting on the crust and what we have below the crust supporting this weight. Every week the members of the team go out and dig a snow pit in different areas. These areas are assigned to each team member at the beginning of the season and are in the starting zones of the various avalanche routes. This is similar to taking soil cores of a green to determine your turfgrass management strategy. We each dig a pit in the snow, about four feet square, and then study the various layers of snow for depth-thor, crusting and snow density to help us determine how the pack might slide and at what depth.

"Of course, it would be nice in the near future if we could simply plug all this snow data into a computer and have it automatically analyzed against all the scientific information and records we have. We could really take some of the guesswork out of making determinations about the snowpack. By building data banks of historical records, environmental factors and topography statistics, computers will someday give us very accurate knowledge of the variations in snowpack depth due to the wind deposition of the snow. We'll be able to say, for example, that back in 1975 when we had the exact same conditions this was what happened. Yes, computers have the potential to really help us."

Kremer's thoughts now turn and focus on what he gains from functioning within the ski resort environment and, like many other golf course superintendents, the challenges of the job that he enjoys.

"One of the most enjoyable things about my winter job is that it's a new challenge. I'm continuously learning new things along with my colleagues. Its new knowledge every day and the challenge comes from determining what should happen from what we know. Not unlike the challenge of managing a golf course, when managing the snow and controlling the skiers the common factors are still nature and people."

At this point one could ask, is this really a golf course superintendent? The answer comes clear as Kremer shifts his thoughts to Big Sky Golf Course.

"We have some disease problems up here, but it's mostly related to snow conditions through the winter. In some years it can become a very big problem. We never really know how bad the disease problem will be until spring brings a thaw. In a bad year we'll have occurrence of *Helminthosporium sp.*, *Fusarium nivale* and *Fusarium roseum*. Our biggest problem comes from *Helminthosporium sp.* Sometimes you can look down our fairways and the entire area will just have a red tinge. Fortunately the bluegrass is strong enough that it pulls out of it.

"We're very careful with the greens. It is necessary to carefully manage the snow cover on them through the winter. So while I'm very involved during the cold months in the ski resort, I still have plenty of things to be tended to down on the golf course."

When faced with growing and managing a golf course near an altitude of 10,000 feet, innovative methods must be used. The average textbook approaches to turfgrass management simply do not directly deal with the extreme vagaries nature has to offer the golf course superintendent at these heavenly heights.

Kremer explains, "Two years ago, although it started off as a fairly mild winter until February, we had to bring a 930 loader down from the ski area and literally plow the snow off the green in April. If we had not used the loader, the greens would have remained under snow until the end of May.

"I've found it necessary to repeat the plowing of greens in the winter months just so we could make a preventative application of fungicide. Even though the ground and greens are frozen solid, we must be very careful with the loader to prevent physical damage to the turf. With a lot of care we've managed to avoid serious damage."

Kremer, like many golf course superintendents, seems to have an endless array of skills and talents. Besides his previously mentioned qualifications, he is also a certified Emergency Medical Technician (EMT) and lacks but a few hours training to gain an instructor's certification in Cardio-Pulmonary Resuscitation (CPR). To top things off, the emergency radio pager he wears on his belt has nothing to do with the golf course or ski resort, but with his responsibilities as a member of the local volunteer fire department.

Besides all his other interests, Kremer has been busy with Big Sky Golf Course. When it comes to the subject of naturalizing a golf course, he has accomplished what a lot of others can only talk about. He has converted nearly all of Big Sky's roughs to the native plant community.

"When it comes to the golf course we must conserve our manpower and revenues as much as we can. We have a fair budget but are always looking for waste and areas to conserve.

"Several years ago we began in earnest to eliminate some of the wall-to-wall mowing of rough areas. It just seemed very out of place in this beautifully natural area. We found it enhanced the challenge of the golf course, encouraged the wildlife to come down from the side of

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the mountain and greatly reduced the manhours involved in the mowing operation.

"At first, many of our regular golfers were somewhat surprised by the natural rough, but they've long ago accepted it as the sensible approach. Of course, since we changed our roughs over the idea has been popularized by many of the golf magazines, the USGA and other prestigious golf courses."

Kremer and his staff have also been busy with an ongoing project moving trees onto the golf course.

"The tree planting project is continuous. We have two tree spades that we use to move native trees from the surrounding mountains to the golf course. Fortunately the resort owns a lot of the surrounding land and we have access to it. I want to plant only indigenous plant material on the golf course so as to have it blend into the landscape very naturally. After all, who am I to improve on what nature has already provided the area.

"We usually have to scout around quite a bit to find suitable specimens. I'm usually looking for healthy smaller trees that can more easily be moved. You would be surprised at how few of the trees are accessible because of terrain. Too often we just can't get the spade up to the desired tree.

"We attempt to be very careful where we plant the trees on the course. I've developed a master plan to help us with this project. You've always got to remember that the specimen will grow and it's necessary to think of the impact the mature tree will have on the course and playability down the road."

Through the winter months, whether he is out directing the planting of trees or up on a mountainside eliminating the danger of an avalanche, it can definitely be stated that Kremer is not one to go dormant with the coming of the first frost. In many ways he exemplifies the golf course superintendent throughout the snowbelt — a hardy group of souls not content with a reduction of activities or responsibilities, professionals who seem to always keep busy in valuable ways.

He's probably up there on that mountain today, keeping busy while gazing down on acres and acres of the awesome beauty that nature creates in different seasons. In a few months, he will be back on the golf course again, in the midst of sprawling green vistas and glimpses of grazing elk, Big Horn sheep, moose and maybe even a Black Bear fishing for trout.

There will be turf talk and concerns about fungus on greens and all the other trials and tribulations of this occupation.

The job of golf course superintendent may not involve regular hair-raising experiences but it carries just as many challenges and unpredictable elements.

And Kremer should be right there, as involved as he was on the mountain slopes, taking daily pride in a first-rate golf course and stealing occasional glances at his other love, the mountain. ■

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