



Snow NEWS

WINTER 2020-2021

43rd Edition



Editorial

2020 has certainly been a challenging and complicated year for all of us.

SMI continues to push the vision of providing **energy-efficient and easy to use/understand snowmaking equipment** to our global customer base.

We have continued to invest in our people and products over the past 6 months as we believe in the future of the industry. New valve technology, software improvements and improved/simplified vaults are some of the ongoing developments.

We are very appreciative of our strong and loyal customer base that has continued to support SMI this year.

Quality snowmaking will continue to be a strategic and critical aspect of resort operations. **SMI remains strong with our experienced manufacturing, service and support teams.**

Let us know if we can help with your snowmaking planning, equipment and services.



Joe VanderKelen
President, Snow Machines, Inc.

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Off the Hill



If you don't catch Product Engineer Neil Christensen in the office, you might catch him on the slopes. Last season, he spent his weekends with his family skiing his way through Michigan. He made it to over 20 ski resorts through the beginning of March.

SMI Partner, Skado, celebrated their 80th Anniversary in Samara, Russia.



SMI SERVICE CLINIC

Every two years, SMI brings together team members from around the globe to host a service clinic. The Fall 2019 clinic took place in Reno, Nevada and focused on automation, maintenance and troubleshooting. (Of course we also had some fun as well.)

Thank you to everyone who attended, and as always reach out to SMI or log on to SmartParts for manuals and training materials.



SMI 2019-20 Photo Contest

You voted and our 2019/2020 photo contest winner was from Wilmont Mountain, WI. Thank you to everyone that participated and voted! Make sure to follow our Facebook page for info on the next contest.



1st Place: Erick Walquist
Wilmot Mountain



2nd Place: Bill Clark
Heavenly CA



3rd Place: Michael Bourassa
Forbush Corner MI

SMI Snowmaking Successes

SAVOY FRANCE

Fully Automated Stick System Installed at Les Karellis



Les Karellis is a ski resort located in the heart of the Maurienne Valley in Sovie, France (roughly 2 hours from Lyon).

With elevations from 1,650m (5,400ft) to 2,495m (8,185ft), the resort enjoys good snowmaking conditions with a rather cold microclimate, allowing the ski resort to be open from December to mid-April.

The SMI team in France provided a turnkey system that included 42 V2, 5 Grizzly and 4 Axis along with 2 Super PoleCat carriages and 3 Standard PoleCat towers. To support the system a new pump station was built capable of 200 m³/h (880 gpm) at 36 bar (520 psi). Overall 9.5km (5.9 miles) of pipe was installed with 122 vaults.

The system after a “normal” winter was running as expected. The customer has been amazed by the snow quality of the SMI Grizzly Snowtowers in all conditions, even on windy and humid nights. In addition, the SMI snowmaking equipment has been performing well.

Thank you Les Karellis for choosing SMI as your snowmaking partner.

More 2019-20 Highlights

Timberline, WV
installed over 70 PoleCat towers. Along with their existing 40 Highland carriages they will certainly bring on the fire power this season.

Snowbasin, UT purchased 15 FreedomX snowtowers on sleds to add to their mobile snowmaking fleet.

Bristol, NY
purchased 14 Standard Puma Towers and SmartSnow 6.0 for their upper Rocket Run.

Bousquet, MA
installed 15 Super PoleCat towers and 25 Grizzly snowtowers to enhance their snowmaking system.

Woodward Park City, UT purchased 11 Full Auto Super PoleCat Carriages, 6 Full Auto Super PoleCat Towers, 3 Manual to Full Auto conversion kits and SmartSnow 6.0

QUEBEC CITY CANADA

Hôtel de Glace

The Hôtel de Glace (Ice Hotel) is located roughly 40 minutes outside of Quebec City and is the only Ice Hotel in North America. Using 2 SMI snow machines, the Hotel is made of 30,000 tons of snow. In addition, 500 tons of ice is also made with walls up to four feet thick. The hotel itself is over 320,000 square feet (30,000m²) and contains a 300 person bar.



NEW JERSEY USA

Big Snow American Dream

On December 5, 2019 Big Snow American Dream, the first and only indoor year-round, real snow indoor ski park in North America opened.

The indoor hill has 160' of vertical with 1,000 feet of slope and covers roughly 4 Acres. The 12 SMI indoor snowmakers produce 5,500 tons of snow and covers the hill with 2' of

snow depth. The snow is rotated every 2-4 weeks to remain fresh.

SMI is proud to have been a part of the Big Snow American Dream project and to supply the indoor snowmaking equipment for the project.



**Did you know
that SMI
also supplied
the indoor
snowmaking
equipment to
Ski Dubai?**

EFFICIENCIES BEYOND THE SNOW GUNS

As a leading manufacturer of snowmaking equipment, SMI strives to produce the most energy efficient machines in the industry. From nucleation technology to air-cooling, our research and development team is constantly on the lookout for better efficiencies, which ultimately means more snow produced per kilowatt of energy.

But what can we learn about efficiencies beyond the system or equipment? Let's take a look at smart and effective snowmaking practices that are sometimes overlooked and often taken for granted.

Working with the environment.

Utilize terrain convexities and roll overs for increased hang-time and production, whilst being mindful of drift and evaporation. Establish

Snow farming in exposed areas to catch drifting snow. Be familiar with the predominant wind direction and determine where the snow will land. Having an understanding of local wind and topography is a vital part of building and maintaining trails.

Installation and positioning.

Machine type and positioning can be tailored for a number of variables such as wind, skier-traffic, sunshine

hours, slope angle and width. Do you have the optimal machine to suit the terrain and conditions? Are the spacings reflective of the snow depth required? Strategically positioned snow guns maximize snow accumulation whilst minimizing grooming time.

Weather forecasting. Anticipate temperatures and wind ahead of time. Are you 100% ready to maximize





production during an impending cold spell? Are you equipped with adequate transport and personnel? Snow production is too often compromised simply due to not being adequately ready ahead of time. Determine the short and long range weather forecast. Perhaps there is a significant rain event in the forecast that pushes out your start-up date but saves valuable water in the long run.

Maintenance and training. Have service checks complete and the system ready to go prior to the winter season. Having a detailed maintenance schedule means ALL

snow guns operating as soon as temperatures permit. Ensure staff are trained ahead of time and prioritize snowmaking operations when busy. Naturally all Ski Resort departments are busy in the lead-up to opening, however snowmaking operations should take priority when resources are stretched.

Slope preparation and interdepartmental communications.

Ensure Snowmaking, Grooming and Ski Patrol departments are all on the same page in respect to opening priorities. Allow snowmaking piles time to cure and build and maintain trails

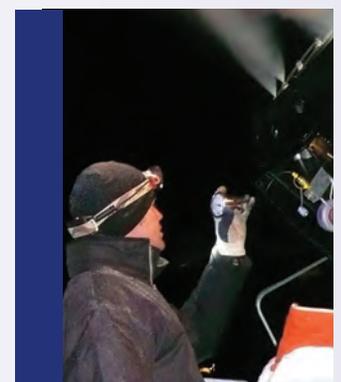


with a common goal in mind. Have systems in place to ensure effective interdepartmental communications.

In summary, continue to develop and fine-tune your operational systems. Even small improvements can lead to significant efficiencies when compounded over the course of the winter season. Remember the cost to build trails is not only measured by the efficiency of the machines but by effective planning and management of snowmaking operations.



"Even small improvements can lead to significant efficiencies when compounded over the course of the winter season."



By Sam Chater
Regional Manager for New Zealand and Australia

SMI INVESTS IN LowE Technology

SMI has added two new stick products to our LowE lineup: the FreedomX and Grizzly. Each with unique features and characteristics to improve snowmaking quality, production and efficiencies at your resort.

SMI FreedomX

The FreedomX is SMI's variable air LowE stick, that utilizes 2 different air flows depending on snow quality, weather and production targets. Run it as a Low-E stick or flip on the Air Blast to pack a punch in marginal weather conditions.

The FreedomX features our 5-step revolver valve with 4 different water flows and 2 air flows for manual control. An intuitive way to change flow steps.

SMI Grizzly

The Grizzly is SMI's go-to LowE stick. Unique to the Grizzly, is SMI's single 5-jet nucleator and head design that creates a better snow particle. A great performer in windy conditions, the Grizzly also provides extra hangtime for increased snowmaking performance.

For manual controls, the Grizzly features our 4-step revolver valve with 4 unique water flows.

Automation: The FreedomX and Grizzly can be automated using a vaulted pit valve or hydrant actuator (for above ground automation). SMI offers both radio and hardwire communication options.

SMI LowE Technology

Flow configuration: all SMI LowE sticks are customized with water and air flows based on your snowmaking goals.

Mounts: SMI offers a variety of mounts including: post, sleds, 2-wheel carts and vaults.

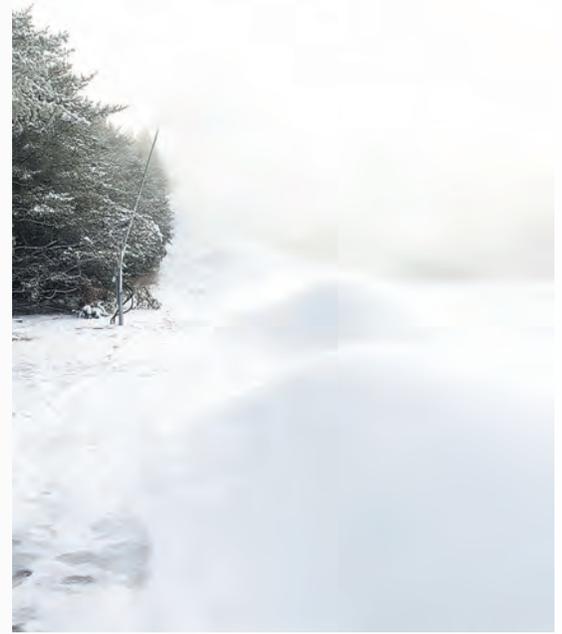
Air: SMI offers both hill air configurations or on-board compressors for the V2, Axis and Grizzly.

Speak with your local SMI contact to learn more about our extended LowE product offerings.





FORBUSH CORNER NORDIC CROSS-COUNTRY SKIING



SMI worked with Forbush Corner to provide a turnkey, state of the art SMI snowmaking system for 2.5km of trails.

Forbush Corner is a Nordic cross-country ski center in Frederic, Michigan, USA with over 18km of cross-country trails.

Last summer, SMI worked with Forbush Corner to provide a state of the art SMI snowmaking system for 2.5km of trails. The system creates a loop for early and marginal conditions, and is the first and only cross country dedicated snowmaking system in Michigan.

The snowmaking system features a new 2 million gallon cooling pond with bubbler fed by a well. A Torrent prefabricated pump station was supplied with 150HP pump rated for 400 GPM. In addition, a 300HP air

compressor capable of producing 1280 CFM of compressed air to feed the 41 Axis LowE Sticks was installed. The Axis LowE Sticks were installed on prefabricated SMI plastic vaults for a clean and tidy setup. The on/off Sticks are great for narrow trails and are simple and easy to use. The system is set up as a flooded trail system. Meaning, that when the air and water is supplied, the sticks are open for a quick system startup.

When Forbush started up last winter, they were pleasantly surprised that **the snowmaking system can produce over 18" of snow in 24 hours.**

Thank you Forbush for partnering with SMI for your snowmaking project.

Product Highlight

SMI SWING ARM



The SMI swing arm with a max height of over 25' is a great solution for large coverage areas and refresh zones.

The swing arm has a tidy set up with the water hose fed up the base pedestal and arm, and features a 30' galvanized steel arm.

The unit has full hydraulic controls for raising, lowering and swinging side to side via push button remote.

Lower the swing arm down for easy access for snow machine maintenance (as shown below), or raise upright for increased hangtime.

Reach out to your SMI representative to learn more.



SAM CHATER

REGIONAL MANAGER FOR
NEW ZEALAND AND AUSTRALIA



Based out of Queenstown, New Zealand, Sam has worked with SMI for over 12 years. He has experience working for SMI on numerous continents and you may also find him around the East Coast in the Northern Hemisphere's winter months. We recently spoke with Sam and asked him about his work with SMI.

BROOKE: Hey Sam, so let's start out with how you decided to get into snowmaking?

SAM: The love for the mountains and outdoors initially. I have always enjoyed spending time in and around the snow! Snowmaking immediately

caught my attention in the early days. Being such an integral part of the industry I thought this would be a great profession to get involved in.

BROOKE: That's great. So from there, how did you get started with SMI?

SAM: I was working as a Ski Patroller at a Swiss Ski resort that was undertaking a significant snowmaking installation with our local SMI distributor. I was involved in that project and the following year took a job supporting our European reps.

This eventually led to a full time role supporting SMI customers globally.

BROOKE: What made you want to work at SMI?

SAM: I had the chance to meet a few of the SMI guys during the early days in Europe. I loved the people and culture of the company and was keen to be part of the team. I also loved the idea of traveling to resorts all over the world and being involved in a growing industry. SMI is a strong and recognizable brand with customers worldwide so it was a perfect fit!

BROOKE: How would you describe your job to someone you meet?

SAM: It's never an easy explanation, especially with folks who don't know the industry. My role these days is Area manager for the New Zealand / Australian region including Evaporation and Dust Suppression, and I provide technical support for our Northern Hemisphere customers during the off-season.

BROOKE: What does your typical day entail?

SAM: Checking in with customers and following up on technical queries. Parts support, planning, sales, marketing – you name it – every day is different. During busy snowmaking periods I can often be on the road for weeks at a time moving from resort to resort ensuring our equipment and systems are running well.

BROOKE: What is your favorite thing about your job?

SAM: I would have to say the outdoors and getting out and about. But I also enjoy the planning aspect and assisting resorts with the design and installation of their systems. There is something hugely satisfying about planning a snowmaking system, working through the installation then

flicking the switch on the first night fire-up. There is a lot of behind-the-scenes work that goes in before you see the first snow on the ground!

BROOKE: Is there a question that you get often when visiting customers?

SAM: "Where's your accent from?" is usually first. But having a technical background in snowmaking, I often get asked about a particular function of the equipment or software. Customers usually have a list of things they would like to run through while I'm visiting their resort.

BROOKE: What's your best advice to customers?

SAM: Keep striving to make the system better and invest in automation. Even small improvements can lead to huge efficiencies.

Be able to hit the ground running when it's time to fire-up by having service checks completed and system ready to go AHEAD of the winter season.

BROOKE: Do you have a favorite memory or story you'd like to share?

SAM: I love all the wildlife you see on the job, from bears to Lynx in North America, to the inquisitive Mountain Parrot (or "Kea") in New Zealand. Once, some friends and I were overnighting in a mountain hut when a Kea landed on the roof and proceeded to be a nuisance by jumping up and down. We took a broom stick and hit the ceiling a few times, "encouraging" the Kea to leave! But instead of flying off, the bird would hang upside down and peer through the window looking for the source of all the noise. But by the time he looked in, we had stopped banging, so the Kea would go back to jumping on



Sam's hobbies include skiing, hiking, biking, barbecue's on the beach and getting out on the water whenever he can.

the roof. After repeating this process, several times, after a while, the Kea flew off. But an hour later he returned, only this time with a companion! He took up his position hanging upside down peering through the window, while Kea number 2 did the jumping. Of course, the broom stick came out and the source of the banging was revealed! An amazing display of resourcefulness and problem solving! Remember we share these mountains even with the smallest of friends!





Snowmaking Today

MORE TECHNICAL FACTS ON SNOWMAKING: Compressed Air Snowmaking

The theory behind compressed air snowmaking is really quite simple: compress the correct amount of air, mix with the correct amount of water, release the mix into the atmosphere, and snow results — provided ambient temperatures are cold enough. The guns, too, are quite simple. They provide a zone for mixing the compressed air and water which then emerges into the atmosphere thru an exit orifice.

While a compressed air system appears simple at the gun end on the hill, it is, in fact, quite complicated. The compressors housed in the pump house are very complex pieces of machinery, easily prone to failure and enormously costly to operate in terms of energy consumption.

Here are typical benchmarks for a typical compressed air system:

1. Figure one horsepower will generate approximately 4 cfm compressed air at 100 psi — plus or minus a small amount depending on make or condition of the compressor;
2. Compressors suitable for snowmaking use lubricants that are expelled into the air stream and settle on the hill;
3. Compressed air guns use 10 CFM (100 psi) to convert one gallon of water into snow at 20°F with 65% relative humidity. Guns may vary slightly but a 10 to 1 ratio is a good average.
4. The same compressed air guns will use 40 CFM (100 psi) to convert one gallon of water into snow at the higher temperature of 28°F with the same 65% relative humidity.

The difference between Average people and Top people can be explained in three words: The Top people do what is expected of them — And Then Some.

5. As a general rough rule of thumb, figure that it will cost you \$1 per hour to operate 20 horsepower.
6. To purchase a compressor, figure it will cost you \$35 to \$40 per CFM at today's prices not counting installation costs.
7. You can rent a compressor for about \$1.50 to \$2.00 per CFM per month.
8. The price of a compressed air gun will run all the way from \$300 to \$1,200.
9. An aftercooler on a compressor can increase its snowmaking efficiency as much as 60% or more.

The foregoing are simple rules of thumb that can enable you to calculate the efficiency and cost of any typical air/water snowmaking system.

Because of the high costs involved in purchasing and operating a compressed air snowmaking system, many areas are now switching to Boyne Snowmakers for added capacity.

At marginal snowmaking temperatures of 28°F, a Boyne Snowmaker will convert 40 gpm of water into snow using only 30 horsepower (15 horsepower for the fan and 15 horsepower for 60 CFM of compressed air).

Under like conditions, a compressed air system will require 400 horsepower (1,600 CFM) to make the same amount of snow! With a Boyne, you come out way ahead — both in initial investment and in operating costs.

The longer you keep your temper, the more it will improve.

•••

Without great risks there can be no great rewards.

SNOWMAKING IN THE WEST

The widespread lack of snow in the West this season brought on some of the most ingenious solutions to the challenge of a snowless landscape we ever heard of.

WOULD YOU BELIEVE:

- Some Colorado areas were blading snow as much as 700 to 1,000 feet to cover bare spots;
- One area in British Columbia ran a full mile of temporary pipeline just to get machine-made snow on 800 feet of trail so they could get a lift open;
- Another area ran 3,000 feet of temporary air and water lines also to open a lift;
- Still another area used a fire truck to pump water to a temporary snowmaking site;
- SMI actually airfreighted 800-pound guns to meet one customer's desperate need of snow; and
- SMI helped another western customer design a snowmaking system over the telephone that was in operation less than 24 hours later!

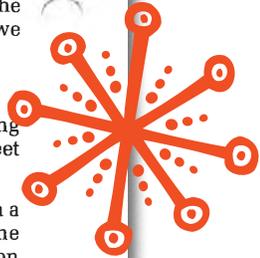
If the foregoing heroics teach anything at all, they teach that every area should have at least some snowmaking capacity — to cover a ballroom run or a teaching area, at least.

And when you are mentally designing such a minimum system, why not give some thought to other little additions you could easily make hurriedly on a temporary basis in case another really "bad" year comes around the corner. It pays to plan ahead.

Best Quote We Heard of So Far in 1981

"I've been in the ski operation business for three years and we've had three bad snow years. Maybe, it isn't a business."

Our only comment to the foregoing is this: Without snowmaking, it doesn't sound like much of a business, but it can be a great money-gobbling hobby.



Advertisement

"Awesome" Snow

When Norm and Dave Johnson of The Pines Ski Area in Valparaiso, Indiana added their new 4-place chairlift last summer, they wanted to assure themselves lots and lots of snow at the unloading area. So they installed a SMI SnowStream 320 on a 40-foot tower nearby.

When we asked Dave later in the season how the tower worked out as a snowmaker, he replied: "It's AWESOME the volume of snow that tower produces. We've never before had so much snow to move around."

Dave and Norm are so pleased with the result of their first tower-mounted SMI SnowStream, they plan on adding one or two more towers this year to increase further their snowmaking capacity. We are sure the new machines will be just as "awesome" in production as their first!



Tower-Mounted SMI 320 SnowStream

Snowmaking: The Facts and The Fiction



Tower-Mounted (40-foot) SnowStream 320



Boom-Mounted (20-foot) SnowStream 320



Boyne Snowmaker

Claims, and more claims! In snowmaking, talk is cheap, but it's PERFORMANCE that counts! Performance like this:

Fact 1 — MARGINAL SNOWMAKING. Are you buying an early opener, or just empty words?

Everybody "talks" a good game of making snow at marginal temperatures, but look whose snowmakers actually helped areas open *first* this winter (1980-81):

Geographic Area	"First to Open" Ski Area	Snowmakers Used in Early Opener
Entire U.S.	Sunrise, Arizona	Snowstream 320s and Boyne Snowmakers
Upper Midwest	Wild Mountain, Minnesota	SnowStream 320s
Central Midwest	Mount Brighton, Michigan	Tower-mounted SnowStream 320s
Lower Midwest	Sugar Creek, Ohio	SnowStream 320s and Boyne Snowmakers

Fact 2 — SNOWMAKING CAPACITY What'll you have — snow or conversation?

What equipment did ski areas operating the LARGEST SNOWMAKING SYSTEMS in the world choose when adding new capacity *this* winter?

Ski Area	System Capacity—Rank	Capacity in gpm	Snowmakers Added This Winter
Vernon Valley, N.J.	World's Largest	10,000	SnowStream 320s (Towers & Booms)
Hunter Mountain, N.Y.	2nd Largest	7,000	SnowStream 320
Wisp, Maryland	3rd Largest	6,000	SnowStream 320s (Tower-mounted)

WHY SMI? Because SMI snowmakers • are the least expensive to install (about 50% of compressed air systems), • the least costly to operate (about 20% the cost of compressed air snowmakers), • the booms and towers offer the ultimate in hassle-free snowmaking, and • they produce snow in quantity while others are merely dusting the area with dandruff.

Fact 3 — SMI is again "sold out" this winter. Contact us for engineering demonstrations and quotes.

Compressed air vs fan snowmaking:



... why heat to cool?

Won't you share with us your opinions — questions — suggestions — helpful tips by writing us freely and often?

Address: Editor, SnowNews, 1512 N. Rockwell Drive, Midland, Michigan 48640 and keep us informed of address changes so you won't miss future issues.



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