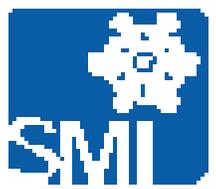


SnowNews



A TIMELY NEWSLETTER FOR OWNERS AND OPERATORS OF SNOWMAKING EQUIPMENT WORLDWIDE

In this Issue:

- Technology of Snowmaking
- Recent SMI Engineering Projects
- Snowmaking Planning/Engineering
- SMI Performance Tips
- SMI 2000 Successes
- The Product Family
- SMI Turnkey Projects
- SMI Facts



Snow Machines

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Editorial

SMI's business continues to perform very well. The 1999/2000 year was another solid year for SMI products and services. SMI appreciates very much the business you all give to our snowmaking team.

The 2000 year is in full swing now with our construction, engineering and manufacturing groups extremely active.

Turnkey construction project volumes continue to grow with projects underway at Deer Crest Utah, Sundance Utah, Soldier Hollow Utah, Mt. Ripley Michigan, Winter Sports Park Utah and Deer Valley Utah. SMI provided most of the engineering for these projects as well.

SMI's snowmaking products continue to improve and capture more market share worldwide. The Wizzard and PoleCat family of products offer a variety of throw, mounts and compressor options to meet the needs of your resort.

Having significant snowmaking capacity and the ability to always have your core trails open and sliding well is one of the keys to a successful mountain business. As you evaluate your snowmaking needs, goals and plans, we hope you will consider SMI.

Best wishes for a great 2000/2001 season!



A road sign taken by our crew during the Mt. Ripley project. Houghton Michigan is an extremely remote part of Michigan.



The Product Family

Many resorts are not aware of the full flexibility offered by SMI products. SMI offers two basic families of products with the many nozzle approach Wizzard and the simple nozzle approach PoleCat.

Both the Wizzard and PoleCat are offered in a variety of mounts, throws and compressor options.

Product	Fan HP	Typical Snow Zone from Gun*
Super	20 or 25 HP	30' to 200' (9m to 60m)
Standard	10 or 15 HP	20' to 150' (6m to 45m)
Kid	7.5 HP	15' to 100' (5m to 30m)

*Throws are very wind dependent

Mounts

Rolling Carriage:

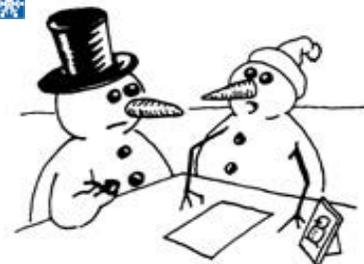
- 3-wheel galvanized carriage
- 3-wheel painted A-frame carriage
- Optional front wheel and rear wheels
- Cat lifting option

Tower:

- Super tower - 18.5' to centerline of fan
- Standard tower - 13.5' to centerline of fan
- Non-climbing or climbing option

Custom Mounts:

- Boom with winch, Snowcat, controls at bottom or at head.
- Custom mounts upon request.



"You mean, you didn't know this was a seasonal job?"

NATIONAL
 SKI AREAS
 ASSOCIATION



Technology of Snowmaking

The Phase Changes of Water

Water can exist in all three phases at temperatures commonly found in the atmosphere. In many instances, water changes from one phase to another. In changing from one phase to another, water either absorbs or releases energy into the air. This hidden energy is commonly referred to as latent heat. The four basic types of latent heat are as follows:

Latent heat of condensation (Lc): refers to the heat gained by the air when water vapor changes into a liquid. $L_c = 2500$ Joules per gram (J/g) of water or 600 calories per gram (cal/g) of water.

Latent heat of fusion (Lf): refers to the heat lost or gained by the air when liquid water changes to ice or vice versa. $L_f = 333$ Joules per gram (J/g) of water or 80 calories per gram (cal/g) of water.

Process	Changes		Heat gained or lost by
	From	To	
Condensation	Vapor	Liquid	2500 J/g or 600 c
Deposition	Vapor	Ice	2833 J/g or 680 c
Evaporation	Liquid	Vapor	-2500 J/g or -600 c
Freezing	Liquid	Ice	-333 J/g or 80 c
Melting	Ice	Liquid	-333 J/g or -80 c
Sublimation	Ice	Vapor	-2833 J/g or -680 c

Latent heat of sublimation

(Ls): refers to the heat loss or gained by the air when ice changes to vapor or vice versa. $L_s = 2833$ Joules per gram (J/g) of water or 680 calories per gram (cal/g) of water.

Latent heat of vaporization

(Lv): refers to the heat lost by the air when liquid water changes into vapor.

This is also commonly known as the latent heat of evaporation. $L_v = 2500$ Joules per gram (J/g) of water or -600 calories per gram (cal/g) of water.

The table above shows the six phase change processes that water can undergo and the heat gained or lost by the air in each of the processes.

To convert the figures above to British Thermal Units (BTUs), you can use 1 BTU equals 1055 Joules or 1 BTU equals 252 calories. To convert grams to ounces, use 1 ounce equals 28.35 grams. A pound equals 16 ounces.



Snowmaker headed for Mystical Mountain, Cloudcroft New Mexico, courtesy of the local fire department who also picked up their truck in northern Wisconsin

SMI Facts

Is it ever too cold to snow?

No, it can snow even at incredibly cold temperatures as long as there is some source of moisture and some way to lift or cool the air. It is true, however, that most heavy snowfalls occur with relatively warm air temperatures near the ground. Typically 15 F or warmer since air can hold more water vapor at warmer temperatures.

How big can snowflakes get?

Snowflakes are agglomerates of many snow crystals. Most snowflakes are less than one-half inch across. Under certain conditions, usually requiring near freezing temperatures, light winds and unstable, convective atmospheric conditions, much larger and irregular flakes close to two inches across in the longest dimension can form. No routine measure of snowflake dimensions are taken, so the exact answer is not known.

Does snow always get fluffier as temperatures get colder?

No. Studies in the Rocky Mountains have shown that the fluffiest, lowest density (0.01 - 0.05) snows typically fall with light winds and temperatures near 15 F. At colder temperatures, the crystal structure and size change. At very cold temperatures (near and below 0 F) crystals tend to be smaller so that they pack more closely together as they accumulate producing snow that may have a density (water to snow ratio) of 0.10 or more.





Mt. Ripley, MI: Intake installation into lake and supercor.

Some Recent SMI Engineering Projects

Deer Crest, Utah

Perisher Blue, Australia

Las Lenas, Argentina

Homewood Resort, California

Mt. Ripley, Michigan

Turoa, New Zealand



Utah Winter Sports Park, Park City Utah



Hydrants at Utah Winter Sports Park

SMI Turnkey Projects

Many customers have selected SMI for a fixed fee turnkey snow-making system this summer. We have assembled an excellent construction team experienced with mountain construction.

We have completed over 130 projects and turnkey construction that is well defined for a fixed fee that makes good business sense.

Winter Sports Park, Utah

- Jump Site combination system
- 30 air guns and 2 Wizzards
- Installed and rental air
- Water cooling and VFD pumping
- 7000' dual air water piping on steep slopes.
- Turnkey project

Deer Crest, Utah

- 20 Kid Wizzards for system for real estate trails
- VFD pumping
- 20,000' piping and cabling
- Pumping building
- Turnkey project

Mt. Ripley, Michigan

- 8 Wizzards and PoleCat for system
- Challenging Lake Superior intake
- VFD pumping
- 8,000' hill piping and cabling
- Turnkey project

Deer Valley, Utah

- Extension of air/water system
- 20,000' dual air water piping
- Installation of air plant and pumping expansion
- Turnkey project

Sundance, Utah

- Extension of fan system
- 8,000' of water piping and cabling
- VFD pumping
- Pumping building
- Turnkey project



Send us your digital pictures of SMI equipment running and we will post the best ones on our web page.

Send to: mail@snowmakers.com with a note.



Bright Thoughts:

Advice is like snow; the softer it falls, the longer it dwells upon, and the deeper it sinks into the mind.

- Samuel Taylor Coleridge

Experience Counts - "The measure of success is not whether you have a tough problem to deal with, but whether it's the same problem you had last year."

-John Foster Dulles

Snowmaking Planning/ Engineering

- Does your area have a snowmaking master plan for development?
- Does your area have an opening strategy for:
 - Two different wind conditions
 - Two different temperature conditions
 - Volume of water required per trail
 - Cost to make snow per trail
- Do you understand your power rates and metering issues?
- Do you have a long-term water plan?

All these issues are covered in detail by SMI's planning and engineering group. Our engineering is evolving into operational plans and strategies as well. Call SMI today for more details.



SMI 2000 Successes

**Deer Crest,
Utah**

*Turnkey Construction Contract
20 Kid Wizzards
Fully Automatic VFD Pumping System*

**Whitetail,
Pennsylvania**

*30 Super Wizzard Towers
8 Semi-Automatic*

**Chestnut,
Illinois**

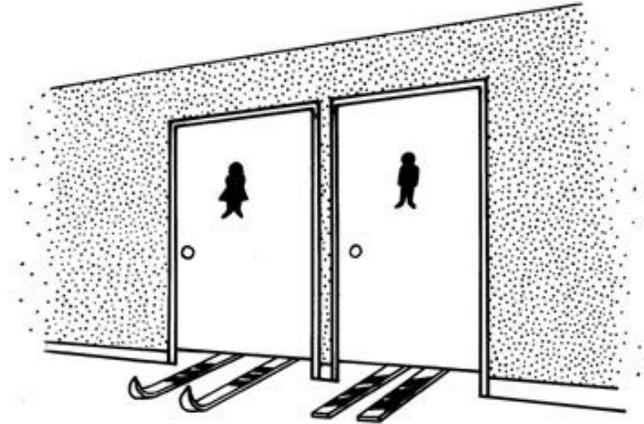
*10 PoleCat Towers
2 Wizzard Carriages*

**Mad River,
Ohio**

*50 PoleCat Towers,
5000 gpm VFD Pumping*

**Skiing Louise,
Canada**

20 Super Wizzards



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