

COMMENTARY BY CHRIS MACINNES



# Crystal Mountain's 'Swiss Cheese' Approach: 300,000 safely visited ski resort during COVID

We had to figure out how to operate safely in the eye of this threat. We employ more than 600 people in winter and 500 in summer; we welcome more than 300,000 visitors annually; and we're home to a community of full- and part-time residents.

Like others, we initially focused on cleaning surfaces: We wiped down everything with hospital-grade cleaners, used electrostatic foggers and followed CDC guidelines – mask on, wash up, spread out, be kind.

But my husband, who is Crystal's chief executive officer, went deeper. He is inquisitive and has the intellect and training to understand complex, scientific concepts. While many of us were disinfecting groceries, Jim, an electrical engineer and member of the American Society of Heating, Refrigeration and Air Conditioning Engineers, was studying the transmission of COVID-19.

He learned early on that the virus spreads primarily as tiny aerosol particles, often found in confined, indoor spaces with significant human interaction.

Jim studied peer-reviewed scientific papers on controlling contaminants in indoor air. He learned that by using multiple mechanical solutions to filter and clean the air inside our buildings, we could reduce contaminants, thus making the inside air safer.

He led implementation of several engineering-based solutions to clean inside air including installing portable HEPA air purifiers; upgrading our central air handling units to MERV-13 filters; opening ventilation dampers to increase the flow of fresh outdoor air, and installing air scrubbers – a spinoff of NASA's technology – in major public use areas.

The most complex of these solutions is the air scrubber, technology we installed using Traverse City-based D&W Mechanical. When air passes through a UV light-activated titanium dioxide membrane filter, it

causes water vapor in the air to turn into negatively charged hydrogen peroxide ions which can then be directed into room air supply ducts. Because of their electric charge, these ions can attach to and destroy aerosol particles such as bacteria and viruses, as well as neutralize odors and dust in the air and on surfaces.

Jim calls these multiple solution-based layers the "Swiss cheese" approach to reducing COVID-19 transmission. No one layer is perfect; each has holes. But by combining layers of protection like masks, social distancing, cleaning protocols, hand-washing and engineered solutions like air ventilation improvements, he believed that we could significantly reduce the potential health threat posed by the virus.

Another layer of Swiss cheese was the Crystal Clean Task Force, a resort-wide initiative to establish protocols and assure access to supplies and equipment. This team ascended the learning curve quickly, working with other resorts, local and state health departments and trade organizations to identify best practices, interpret them for our situation, communicate them and monitor compliance.

In addition to engineered solutions for controlling inside air contaminants, many layers of protection were just common sense – consistent sanitation regimens with virus-killing disinfectants, installing clear separation barriers at cash registers, between dining tables in our restaurants and in our fitness center, and ubiquitous signage to trigger safe behaviors.

But in the eye of the pandemic, Crystal's greatest opportunity to accomplish our safety priority was the very nature of our business. As a mecca for healthy, outdoor physical activity, including in winter downhill and Nordic skiing and boarding, snow shoeing and fat tire biking, our community could participate safely in the activities they loved with their favorite playmates.

We were fortunate the outdoors never closed in Michigan. Our health officials and Gov. Gretchen Whitmer understood the benefits of physical activity in our four-season outdoor playground, where we are blessed with clean, fresh air. They encouraged all Michiganders to get outdoors, and record numbers did, exploring our hiking and biking trails, camping, swimming, boating and downhill and cross country skiing.

In fact, last winter, despite some operational challenges such as masking in lift lines and limiting inside access, we enjoyed one of the best ski seasons in our history.

The results of our Swiss cheese approach appear to be successful. Despite hosting more than 300,000 people in the course of the pandemic and maintaining a full staff working on site, we did not have any spreader events or community transmission.

Thanks to a team effort at every level, under challenging circumstances, we have been able to meet our highest priority: operating safely.

As the risk of COVID-19 transmission begins to recede, a silver lining from this experience is that we better understand how diseases spread and what we can do to reduce them, particularly indoors.

We now have the equipment and protocols in place to create multiple layers of protection, from cleaning protocols, to behaviors, to mechanical solutions such as air scrubbers and purifiers to clean inside air.

We also believe the heightened passion to be outdoors, where we can drink in good, fresh air and recreate safely with friends and family, is a silver lining that will lead to a healthier future.

*Chris MacInnes is president of Crystal Mountain. In 1985, she and her husband Jim moved from California to join this business and together have led its evolution. She is also active in state, local and industry organizations.*

My appreciation for fresh air started while growing up in Benzonia, Michigan, a village founded in 1858 as an educational Christian colony. My grandparents left their urban digs in Pennsylvania in the early 1900s to grow orchards in Benzie County and extolled the virtues of Benzonia, explaining to me that it was a Greek term for "good air."

That belief in good air was reinforced by my father, who, as head of Pet Milk's new frozen foods division, frequently traveled south to cities with polluted air. Upon returning home, he'd seemingly drink in the fresh air and remind us that we were very lucky to live in Benzie County.

He once described a place he'd been as so hot you could fry an egg on the sidewalk. As a kid who loved her northern Michigan outdoor playground, the thought of a place with dirty air, where you could fry on egg on the sidewalk, was not appealing!

Fast forward three decades later to 1985, when my husband Jim MacInnes and I decided to move from Southern California to Benzie County to live in this fresh air paradise and operate our family-owned business, Crystal Mountain.

Since then, it has been, in the words of poet Robinson Jeffers, our home and our destiny.

In March 2020, when the World Health Organization declared a global pandemic, we were not only frightened but also clueless, knowing we were entering turbulent and uncharted waters. We each have stories from those early days in the spring of 2020 as we sought to protect ourselves and our community. A core Crystal value is safety, which for us is job number one.

**EDITORIAL & BUSINESS OFFICE**

P.O. Box 4020  
Traverse City, MI 49685  
231-947-8787

**ON THE WEB**

tcbusinessnews.com

**PUBLISHER**

Luke W. Haase  
lhaase@tcbusinessnews.com

**CONTRIBUTING EDITOR**

Gayle Neu  
gneu@tcbusinessnews.com

**COPY EDITOR**

Becky Kalajian

**CREATIVE DIRECTOR**

Kyra Poehlman

**AD SALES**

Lisa Gillespie  
lisa@northernexpress.com  
Jill Hayes  
jill@northernexpress.com

Kathy Johnson  
kathy@northernexpress.com

Kaitlyn Nance  
knance@northernexpress.com

Todd Norris  
tnorris@tcbusinessnews.com

Michele Young  
myoung@tcbusinessnews.com

**CONTRIBUTING WRITERS**

Ross Boissoneau  
Amy Lane  
Craig Manning  
Clark Miller  
Rick Haglund

**WEB PRODUCTION**

Byte Productions

**MAILING/FULFILLMENT**

Village Press

**DISTRIBUTION**

Gary Twardowski

**SERVING:**

Grand Traverse, Kalkaska,  
Leelanau and Benzie counties

The Traverse City Business News

Published monthly by  
Eyes Only Media, LLC  
P.O. Box 4020

Traverse City, MI 49685  
231-947-8787

Periodical postage qualification pending at  
Traverse City, MI.

POSTMASTER: Send address changes to  
The Traverse City Business News,  
PO Box 1810, Traverse City, MI  
49685-1810.

The Traverse City Business News

is not responsible for unsolicited  
contributions.

Content ©2021 Eyes Only Media, LLC.  
All rights reserved.

EYES ONLY MEDIA, LLC

