

MSP® Dehumidification for Wickett & Craig of America

Wickett & Craig of America Inc. is the leading North American producer of premium leather tanned using natural vegetable extracts instead of artificial tanning chemicals.

Established in 1867 in Toronto, Ontario, Canada, the company has been based in Curwensville, Pennsylvania, USA since 1990. The Wickett & Craig tannery is a state-of-the-art facility covering 180,000 square feet. But in the summer of 2013, they came to the end of their patience with an ongoing humidity problem that was quietly crippling their business.



The raw material of Wickett & Craig's fine leather is top-grade North American steer hide. "We get them in with the hair on them and process them the whole way through the plant. It takes six to eight weeks to get a load of leather from start to finish," explained Dan Ruffner, Operations Manager.

Wickett & Craig tan the hides with natural oils and waxes, preserving the leather's suppleness and beauty. Then, they dry the hides through a painstaking process known as "togglng" in which the wet hides are gently stretched between small clamps called toggles while they dry in the air in a dedicated togglng area. After the multi-phase tanning, drying and dyeing process is complete, the resulting high-quality leather is shipped to discerning customers who use it to create personal leather goods and equestrian accessories, from luxury bags and shoes to bridles and saddles.

Humidity versus Productivity

For 23 years, the company had operated in the humid Pennsylvania summers without too much difficulty. However, the moist climate of their location was becoming an increasingly serious issue.

The ideal drying time is two to three days for a steer hide that's been tanned with vegetable extracts — but at Wickett & Craig's leather tanning facility last summer, **the drying process took three times as long as it should.** "We're in the basement. In the wintertime it's cool here so the humidity is not that high," said Ruffner. "With the humidity being high in the summertime, it was taking us five to eight days to dry the leather. It's humid outside, so it's humid inside. The water didn't evaporate."

At first, the humidity problem was bearable because it didn't cause much disruption to Wickett & Craig's operations. "It was always a problem, but our production target wasn't that high. Now it's different — our production target got higher."

Increasing customer demand should have been something to celebrate. But with the drying process taking up to eight days to complete, they couldn't fulfill all those orders fast enough.

Wickett & Craig were losing business because they couldn't keep up; there was no point in tanning hides if they couldn't be dried, so each time the humidity in the togglng room became unmanageable, the business would grind to a halt until humidity levels fell and the leather began to dry faster again.

- CONTINUED -

Production time was not the only issue – there were problems of wastage, too. More than once, they found a load of **leather had grown moldy during the over-extended wait for it to dry**. “Mostly that only happens if it takes longer than 8 days,” Ruffner said, but sometimes luck was against them and the leather moldered where it stood. It was a waste not only of the raw materials, but also of the time and energy Wickett & Craig had already put into tanning those hides.

If they did nothing to resolve the humidity issue, Wickett & Craig would have to face the same problems again every summer. The thought of going through this year after year was too much to bear.

Searching for a solution, they initially decided to install ventilation units. “We just tried to move the air around,” Ruffner said. “We had three fans mounted in the wall that sucked the air out, trying to get the humidity out. We had big exhaust fans on the roof.” **The air their ventilation units removed was simply replaced by more humid air**. It was useless.

Innovatively Effective Dehumidification Technology

Wickett & Craig’s Vice President of Operations, Chin Min Lim, contacted [Nautica Air Systems](#) for advice. After a discussion of the problem, Nautica Air Systems’ Walter Stark visited the Wickett & Craig facility for an in-person survey and consultation. “He came and looked and told us the best thing to do,” Ruffner put it with charming directness.

Given the outdoor humidity during summertime Wickett & Craig’s location, Stark knew that mere ventilation wouldn’t reduce the indoor humidity levels enough to dry leather within the optimum two to three days. **A more high-tech solution was required: Nautica Air Systems recommended installing Multiple Small Plate (MSP) dehumidification technology**, one of Nautica’s specialties. This breakthrough in low-energy heat exchange and dehumidification technology was invented and engineered by Nautica Air Systems’ parent company MSP Technology.



MSP dehumidification equipment uses a super-efficient, patented system of dehumidification and cooling that offers up to 50% energy savings compared to traditional dehumidification technologies. It involves no moving parts, meaning that there are fewer opportunities for wear and tear, and the operating and maintenance costs are also surprisingly low. This was an ideal dehumidification system for Wickett & Craig, as it would provide fine-tuned control over humidity levels in the toggling room without overstretching their budget or requiring frequent tune-ups.

The first element of Nautica Air Systems’ solution was to create a more sealed environment so the humidity no longer entered into Wickett & Craig’s toggling area so easily from outside. “The fans we had, we boarded them up,” Ruffner said.

The old ventilation fans and ducting provided a route for humid air to enter the facility just as much as they did to draw it out. Sealing those fans allowed the second element of the solution —MSP dehumidification equipment installed by Nautica Air Systems — to do its job perfectly and with only 4-12 people in the drying room, there was still plenty of ventilation to maintain indoor air quality.

- CONTINUED -



“We don’t have to use those exhaust fans. We’ve got the condenser on top of the roof, then we’ve got the big dehumidifier sucking the humidity out of the air and the water goes in the drain,” Ruffner said.

The installation was simple and painless. MSP technology requires fewer items of equipment than many other dehumidification technologies, takes up little space in comparison, and the installation process takes less time. All Wickett & Craig had to do was choose an installation date. “**Nautica supplied everything. It didn’t involve any interruptions.** We might’ve had to shut down one machine just for a couple of hours, but it was nothing major,” Ruffner confirmed.

Impressive Humidity Control Results

The outcome of the new equipment installation was exactly as promised: “They told us what the machines would do, and they did it. We close all the doors and turn it on, and the humidity drops and the temperature’s not as high in that room either.”

Ruffner was “real pleased” with the results of Nautica Air Systems’ work and was particularly impressed by the ease of humidity control using the newly installed MSP dehumidification equipment. “We have a control system. **We actually can control the humidity in the room** to get the correct amount of drying time.”

To maintain the highest standard of quality in the leather Wickett & Craig produces, this fine-tuned control of humidity levels while the leather dries is important. Too high and it won’t dry at all; too low and the quality of the finished product begins to suffer. “We never had a problem with it being too low, but we like it around 40%. We gotta be careful that it doesn’t dry *too* quickly or it’ll make the leather crack. **Now, with that dehumidifier, it’s taking us two to three days. Two to three days is optimum.**”

Wickett & Craig can now take on a greater volume of orders and plan their production more easily. No matter how humid the day might be, they can decide the precise level of humidity in the toggling room.

“Before, we’d get a bottleneck because stuff wasn’t drying, so we had to slow down on everything before that,” Ruffner recalled. There was no way to know when the next humidity-related problem would arise. “We couldn’t predict, ‘Oh, everything’s wet, all our units are wet, we can’t proceed any further.’ We can control our production better now.” The new dehumidification system allows them to predict future production with confidence.

Ultimately, the MSP technology installed by Nautica Air Systems has allowed Wickett & Craig to control humidity with precision, achieve its optimum speed of production and resume the business’ healthy growth.

Shorter lead times encourage orders; the faster Wickett & Craig can promise to deliver their premium-quality leather, the more orders they receive. Since receiving expert help from Nautica Air Systems, Ruffner said, “Lead times are five days quicker, so the order’s out the door.” Freed from their struggles with excessive humidity, the company now has nothing holding them back.

Client: [Wickett & Craig of America Inc.](#)

Industry: Leather Tanning & Finishing

Number of employees: 100 to 200

Challenge: Excessive humidity

Solution: MSP dehumidification technology