DORIS DEV

Doris Dev

Industry:
CONSUMER PRODUCTS

The Challenge

Doris Dev is a New York and Hong Kong-based product development agency that brings consumer products from idea to market. It is the developer of the Canopy, a dishwasher-safe humidifier aimed at fashion-conscious consumers focused on skin care and aromatherapy. Doris Dev was looking for a CAD and data management platform that would enable easier sharing of designs with its internal stakeholders and external partners - allowing for marketing and sales to have earlier influence on the final product.

Results

- Onshape's real-time data management prevents version control issues between Doris Dev engineering teams in New York and Hong Kong. Whenever one team member makes a design change, everyone else instantly sees it.

- Onshape's Sharing feature allows the Doris Dev core design team to easily share CAD models to non-CAD users across the organization and incorporate their feedback into earlier design iterations.

- Using Onshape's Follow Mode, new engineering hires can follow a lead presenter in a CAD document in real time for training sessions. Onshape's easy learning curve allows Doris Dev to onboard new talent quickly for a project.

"Overall, Onshape has enabled me to do less work. I'm able to pass more work off to the rest of the engineering team. Because there is such easy oversight of CAD assets, we can be a much more distributed team. I feel like we'd never be able to do that with our old file-based CAD software."

– **Lucas Lappe**, Head of Product at Doris Dev

Doris Dev Creates
"The World's Cleanest Humidifier"

Consumer product developer relies on cloud-native Onshape for boosting collaboration between its New York and Hong Kong engineering teams

Sometimes an inventor's "eureka moment" can stem from the most mundane experiences. For mechanical engineer Lucas Lappe, inspiration came from watching his girlfriend painstakingly scrub her humidifier week after week.

"She would spend every Sunday cleaning it out with a Q-tip and vinegar," recalls Lappe. "She would clean it religiously because she used the humidifier year-round for skin care. My experience with humidifiers was different. I would use it just seasonally in the winter and when it got dirty and gross, I would just throw it out."

"Humidifiers are wet environments and they turn themselves off when there is still water inside. So you end up with lots of black mold, pink mold and overactive bacteria that are very common in your home," he adds. "The typical humidifier is a breeding ground for those organisms. And they all have electronics built-in to their water tanks – a motor, a water sensor, and a power supply – so it's really difficult to wash them."

The Canopy humidifier was born out of the desire to create a year-round household appliance that could be cleaned in the dishwasher and wouldn't wind up in a landfill at the end of every season. Billed as the "World's Cleanest Humidifer" and "Healthy Skin's Best Kept Secret," the product is targeted toward women who follow strict daily beauty regimens and who appreciate aromatherapy. A built-in aroma diffuser allows users the options to add their favorite scents.

In a recent review in Vogue magazine, the Canopy was praised as the "do-it-all" humidifier.

The Canopy was designed, manufactured and brought to market by [Doris Dev](#), an on-demand, full-suite product development agency where Lappe serves as Head of Product. Based in New York City with a dedicated sourcing and manufacturing team in Hong Kong, the firm leads product development projects from idea to market, including industrial design, mechanical and electrical engineering, sourcing, manufacturing, compliance and fulfillment. Some of their clients include: Great Jones, Loftie, Open Spaces, Byhumankind, and Blueland.

Another desirable customer demographic for the Canopy are design-conscious people who pay attention to the style of home appliances in the same way a car enthusiast would judge a vehicle purchase.

"During our research, we talked to parents who had bought humidifiers for their kids and you'd see these beautifully decorated nurseries with a hideous large appliance just sitting there," Lappe says. "Many people are very discerning about interior design and they carefully curate what products enter their homes. And before the Canopy, there was no humidifer for the curated home."

Clean Moisture
Evaporative (no mist) technology provides clean, filtered moisture free from bacteria and particles.

Anti-Mold
Proprietary Smart Persistent Airflow (SPA) technology and embedded UV LEDs keep mold from growing.

Easy Clean
All parts are easy to handle and dishwasher safe.

Nightstand Friendly
Small footprint and modern design, night mode dims lights.

Aroma Diffuser
Simple and clean home scenting.

Available in 4 colors

No visible mist or steam.
Just filtered, hydrated air.

CANOPY TECHNOLOGY

Smart Persistent Airflow (SPA)™
Smart sensors know to continue running if there is any water left in the unit. No water left inside means mold can't grow.

| RUN TIME | Up to 24 hrs | TANK | 2.5L of water |
AREA	Up to 500 sq ft	POWER	5W (110/220v)
		WEIGHT	3lbs (1.5kg)
		DIMENSIONS	L 10", W 7", H 8.5"

The Canopy humidifier is being primarily marketed to women who use humidifiers year-round as part of their daily skincare regimen. The product is one-third the size of the typical humidifier.

Design Challenge:
Product Miniaturization and Eliminating Mold

Meant to "fade into the background" rather than take over a bureau or night table, the Canopy is about one-third the size of most of its competing brands. "You shouldn't walk into a room and know that there is a humidifier there," says Lappe. "It should just be there. You don't choose a humidifier because you want it to be the centerpiece of your home."

Using a smaller water tank and a more efficient fan, the Canopy has a light sensor that increases the fan speed (for a higher evaporation rate) at night when the user is sleeping. During the day, when people are generally not in their bedroom, a slower fan speed conserves water but still runs air in the system to reduce mold growth. The appliance runs continuously until the last drop of water is evaporated – no moisture means no mold.
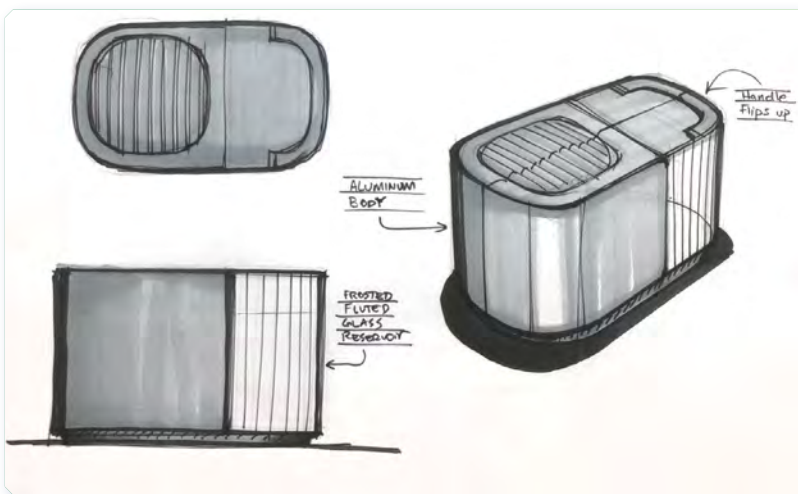
While seeking to create an anti-mold humidifier that is also compact and stylish, the Doris Dev engineering team considered multiple materials and design concepts.

Unlike most humidifier brands that build the electronics into the base, the Canopy houses its electronics in a separate compartment above the water level – allowing most parts to be run through the dishwasher.

An exploded view of the Canopy humidifier, which is the first product in its class to eliminate mold and be dishwasher-safe.
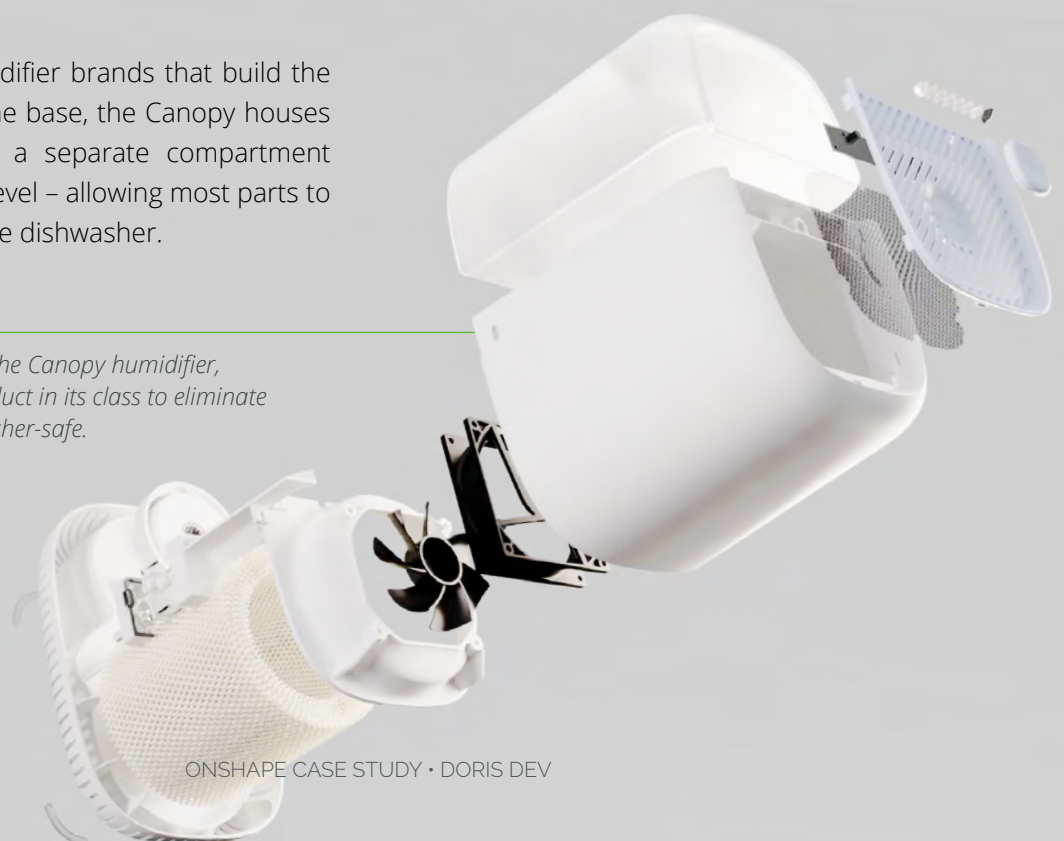
How Cloud-Native CAD Improves Collaborative Engineering

To better align collaboration between its engineering teams in New York and Hong Kong, Doris Dev relies on PTC's Onshape, a cloud-native SaaS platform that combines a robust CAD system with built-in data management and real-time collaboration tools.

Lappe says that Onshape enables its core engineering team to share early product designs with internal stakeholders across the company and incorporate their feedback into new iterations faster.
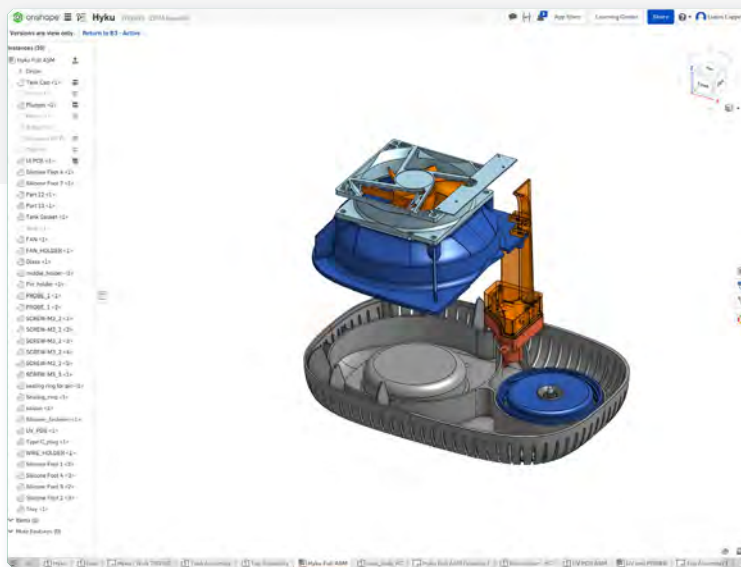
To design the Canopy, "the world's cleanest humidifier," Doris Dev used PTC's Onshape, a cloud-native SaaS product development platform.

"In Onshape, we are able to quickly make design changes with input from multiple designers at the same time because we're all able to share design documents," he says. "We're all able to preview the designs with nine technical team members and the marketing and branding teams who can see the product and provide feedback without ever needing a CAD license or the ability to download a CAD file and open it up."

Early collaboration across the company is absolutely critical to incorporate viewpoints that may be otherwise overlooked while engineers are hyperfocused on the design process.

"We had one design that we prototyped that looked amazing in sketching and in CAD and rendering," recalls Lappe. "But when the female team members saw it, they said it looked like 'it was designed by men for men and was way too techie.' So we went back to the drawing board and built a product that's softer and much more organic-looking – that's how we ended up with the product we have today."
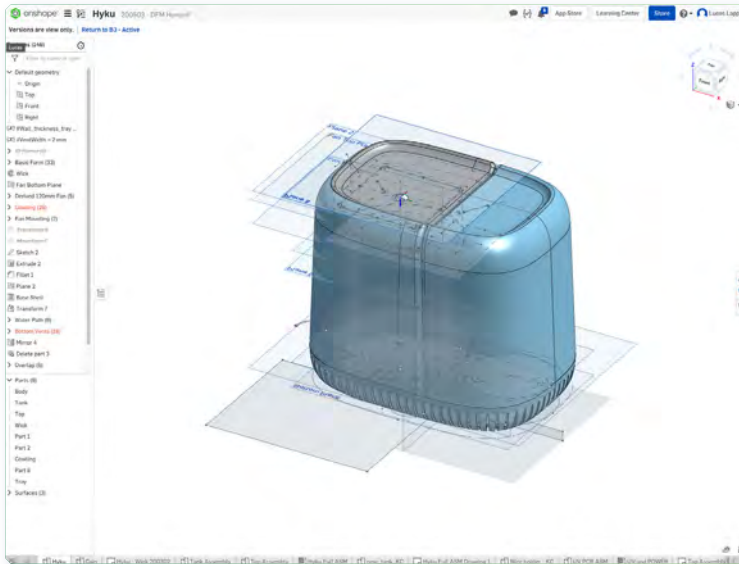
Doris Dev also credits Onshape for improving communication between its core design team and their clients, allowing them to monitor the progress of a project 24/7.

"What we're able to do with Onshape is give our clients a living link. They can watch us work and see all the changes we're making," says Lappe. "We do this freely because we want all of our clients to see how good, bad and messy the development process can be sometimes. We believe the more information they have, the better they're going to understand us and the better clients they're going to be."

"In the Onshape Document, our clients can make comments when they see something they don't like, and we can say, 'Hey, okay. Do you want to make this change? Here's what happens when we make this change, and here's why we can or can't make that change to the design.' And they're able to see all that in real time," he adds.

Onshape's Quick Learning Curve

Doris Dev credits cloud-native Onshape for helping its engineering teams in the United States and Hong Kong collaborate in real time.

Doris Dev continues to grow its client base, working on bringing a wide variety of consumer products to market, including gravity blankets, electronic components, pet accessories, camping gear, designer baby strollers, and sustainable packaging.

"Onshape is enabling us to grow faster as a team," says Lappe. "So for instance, when we have brought on new engineers, within their first day they're able to tackle assignments even if they have never used Onshape before. Maybe they are coming from SOLIDWORKS or another CAD system, but by using Follow Mode, we're able to show them what we need."

"We're able to screen share and follow each other in Onshape and something that used to take us a couple of days can now happen in an hour," he adds. "The learning curve is fast. Within their first day of seeing Onshape, engineers are already making changes to parts and versioning them. Beyond that, I'd say that everyone feels confident in the system within a week if not sooner."

"Overall, Onshape has enabled me to do less work," Lappe says. "I'm able to pass more work off to the rest of the engineering team. Because there is such easy oversight of CAD assets, we can be a much more distributed team. I feel like we'd never be able to do that with our old file-based CAD software."