Onshape Case Study

JUNIPER DESIGN

JUNIPER®

INDUSTRY: ELECTRONICS

The Challenge

Juniper Design launched in 2011 as a modern, multidisciplinary umbrella design brand rooted in craftsmanship, technology, and timeless form. Over time, Juniper evolved into designing and producing vertically integrated architectural lighting technology solutions. They are recognized today for their award-winning THIN System and a growing portfolio of customizable, high-end fixtures illuminating spaces for top companies like Google, Apple, Bank of America, and WeWork, as well as private residences and art installations.

Juniper has cemented itself as a design leader in the high-end interiors industry, with every design engineered digitally and realized physically onsite in Connecticut through precision machining and hand-finishing. The brand's highly configurable products create significant engineering complexity. Each lighting family has tens of thousands of possible configurations across lengths, finishes, and electrical options. Managing these variations in a traditional file-based CAD and PDM environment was a major innovation bottleneck.

With engineering and design teams distributed across New York, Connecticut, Armenia, and Cyprus, Juniper needed a platform that could streamline collaboration, centralize configuration data, and eliminate hardware dependencies. They chose PTC's Onshape.

Results

- **25% faster configuration updates**
  using Onshape's built-in CAD configurations and custom features

- **Streamlined real-time collaboration**
  between global teams across three countries

- **Enhanced design visibility**
  on modular systems, supporting faster, confident iteration

- **Developed custom ERP integration**
  to unify design, manufacturing, and inventory in one digital thread

"Onshape isn't just better CAD; it's better CAD for Juniper. It solved the exact problems we'd been living with for years."

– **Tom Simon**, *Director of Design and Product Development, Juniper Design*

Juniper's Metropolis modular lighting system can be customized to fit a client's needs. With Onshape, engineers can instantly modify parameters such as length, finish, and color to generate BOMs and drawings.

How Juniper Design Scaled Global Integrated Product Development with Cloud-Native Onshape

Juniper uses PTC's Onshape cloud-native CAD & PDM to connect design and manufacturing, uniting digital precision with hands-on craftsmanship.

From file-based frustration to cloud-native freedom

Before Onshape, Juniper used a legacy SOLIDWORKS solution to manage its growing portfolio of configurable lighting systems. But as the company's product lines grew, so did its file-based problems. Engineers wrestled with slow performance, broken file references, and outdated local copies, while their global team struggled to stay in sync across time zones.
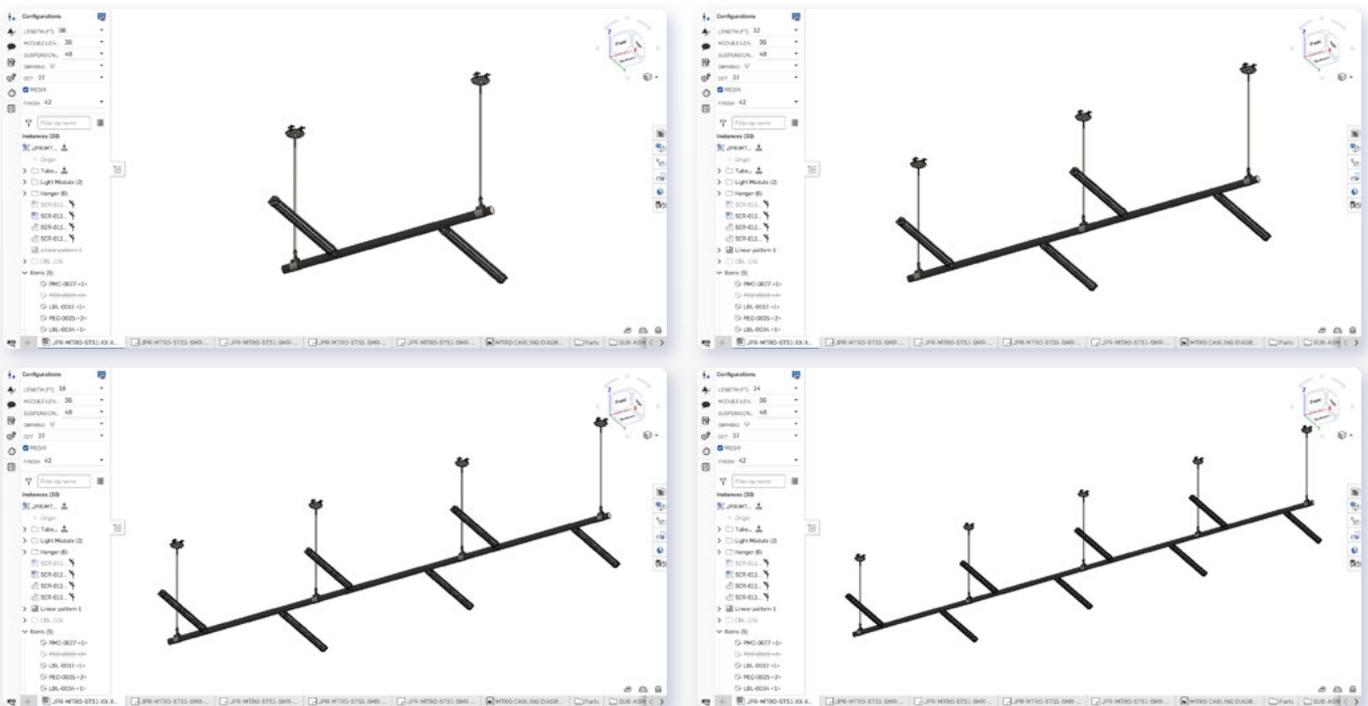
"Lighting is inherently configuration-heavy," explains Tom Simon, Juniper's Director of Design and Product Development. "We were constantly hitting walls with performance and data management."

SOLIDWORKS also created friction when onboarding and managing users. Installing and maintaining licenses for remote engineers could take days, and every hardware upgrade meant another reinstall.

When Simon learned about Onshape's cloud-native, collaboration-first architecture, it immediately stood out as the modern alternative Juniper needed.

"The idea of eliminating installs and servers while enabling real-time collaboration was a perfect fit," he says. "Onshape isn't just better CAD; it's better CAD for Juniper. It solves the exact problems we'd been living with for years."

Engineering efficiency through smart configuration tools

Juniper relies heavily on Onshape's CAD configuration tools to design their modular lighting systems, reducing product variant update times by 25%.

Juniper often manages assemblies with over 5,000 configurations. Onshape's built-in configuration tools help them maintain speed and accuracy, reducing update times by 25%.

"What used to be a half-day update now takes an hour," says Penko Slivov, Design Engineer. "That difference adds up fast when you're managing thousands of product variants."

Onshape's integrated CAD configurations have become the foundation for Juniper's complex product catalog, replacing manual Excel-based workflows that once consumed the day.
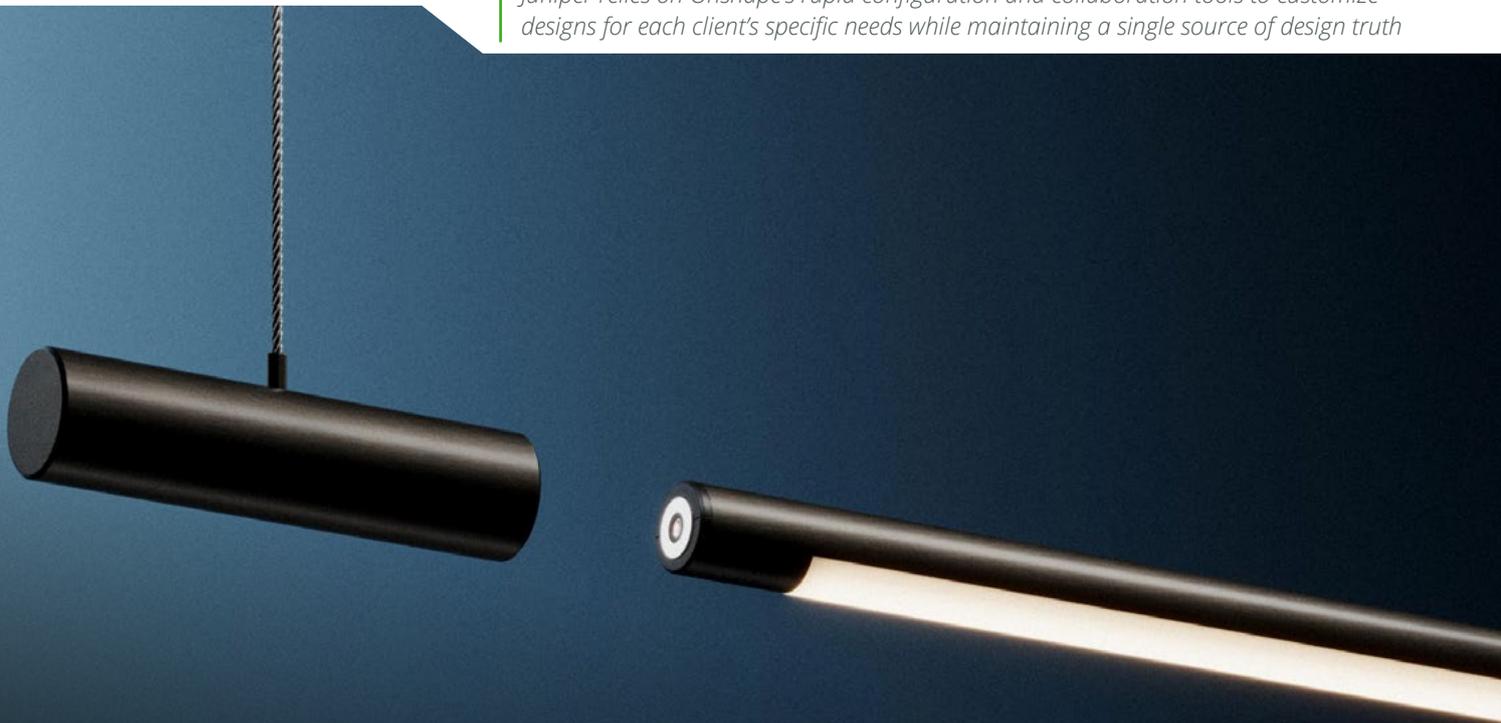
"Configuration control is an extreme help for us, because we regularly deal with up to tens of thousands of configurations for various products," says David Rauseo, Juniper Mechanical Engineer. "It's very customizable, and Onshape has been a real help for that."

[Custom features](#) further streamline their process by automating data import/export, letting Juniper scale its lighting systems efficiently while maintaining accuracy across each variant.

This flexibility is especially important as Juniper experiments with new patinas, colors, and surface finishes produced in-house at its Southington, CT, factory, where all CNC machining, polishing, painting, and assembly take place.
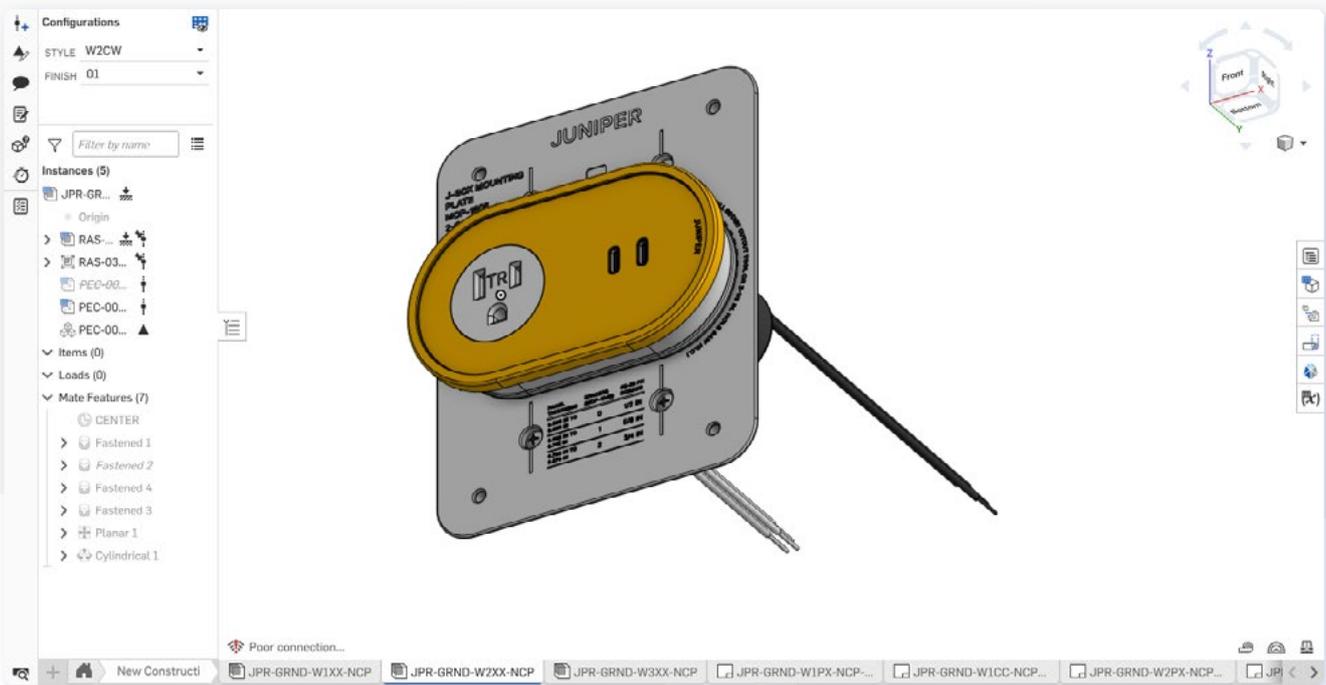
"When we add a new finish, that change ripples across thousands of configurations," Simon says. "Onshape makes that practical instead of painful."

Juniper relies on Onshape's rapid configuration and collaboration tools to customize designs for each client's specific needs while maintaining a single source of design truth

Global teams, local speed

Juniper's globally distributed engineers, designers, and production teams collaborate directly in Onshape's browser-based environment, meaning there's no file check-ins, VPNs, or duplicate copies.

Juniper's engineers rapidly generate configurations for each client project in Onshape while maintaining full revision control and visibility. Their in-wall receptacle, Ground Control System, is the latest project to benefit from Onshape's design transparency and collaboration.

"Our manufacturing team can access revision-controlled drawings through a simple link," says Rauseo. "If they bookmark it, it's never out of date. That trust that they're always using the right version is huge."

The simplicity has transformed Juniper's internal processes. Non-engineering teams like customer service and sales use Onshape Publications to view controlled versions of assemblies and product data.

"It's easy to make sure everyone is in the right sandbox," says Simon. "Publications let us control visibility without creating confusion."

This global visibility has made daily collaboration feel local: "We have engineers in Armenia and Cyprus working seamlessly with our U.S. teams," says Slivov. "It's as if we're all in the same office."

Fileless PDM enhances design transparency for modular innovation

With Onshape's built-in PDM, Juniper's engineers can open 3-4 times more documents at once than they could in the past. Team members can edit the same design concurrently in real time, with no need to check-in, check-out, or lock files.

This enhanced design visibility is critical to compare assemblies, measurements, and configuration variants across Juniper's modular product lines. Their Onshape-native designs require continuous updates and rapid iteration to meet the specific needs of each customer.

For example:

Metropolis System

Using Onshape Publications, engineers can modify parameters such as length, finish, and color temperature through drop-down menus, instantly generating accurate bills of materials (BOMs) and drawings. A modular lighting collection inspired by Bauhaus design, Metropolis can span up to 24 feet in a single continuous run.

Ground Control System

Launched in fall 2025, this in-wall receptacle system uses the same Onshape-driven workflow. Publications allow rapid configuration for each client project (like integrating USB-C ports, custom finishes, or mounting requirements) while maintaining full revision control.

"Onshape delivered on the promise of the product, not just in the CAD and configuration area, but also in this downstream collaboration," says Simon. "Even as a light user, I can log in, pull dimensions, or leave comments. It's accessible, reliable, and integrated with how we actually work."

Engineering efficiency through smart configuration tools

As a vertically integrated manufacturer, Juniper controls every step of production, from design and machining to finishing, assembly, and fulfillment. That makes data continuity between these stages essential.

Now that they've perfected configuration management in Onshape, Juniper is taking it a step further. They're developing a custom API integration between Onshape and its Oodo ERP system to automatically synchronize BOMs, configurations, and component data in real time. This will ensure that production and inventory teams always work from the same source of truth as engineering.

When fully implemented, the integration will enable:

- Automated BOM updates from Onshape to the ERP, eliminating manual exports.
- Configuration-driven inventory management, so custom orders instantly reflect material requirements.
- Live change tracking, ensuring purchasing and production teams see design revisions as soon as they're released.
- Improved forecasting and production planning, powered by accurate, real-time design data.

By linking Onshape's product data directly with their ERP, Juniper is extending its digital thread, creating a seamless handoff from design to manufacturing, and ultimately shortening the path from idea to installation.

Anchored by Onshape, Juniper has unified collaboration, shortened design cycles, and successfully brought its craftsmanship into a fully digital environment.

Lighting the path ahead with Onshape

Juniper has redefined what architectural lighting manufacturing can look like: design-led, digitally integrated, and globally collaborative. With Onshape as its design backbone, the company has unified its distributed teams, accelerated iteration, and brought its craftsmanship-driven philosophy into the digital age.

Juniper sees Onshape as an essential part of their continued growth. The platform's flexibility supports both their creative experimentation and rigorous production needs, ensuring every design decision flows seamlessly from concept to completion.

"Onshape lets us think differently about product development," Simon reflects. "We move faster, with fewer bottlenecks and less confusion. Our data is secure, our team is connected, and our products get to market faster than ever before."