



Semantic Bridge Earns International Recognition for Advancing Building Intelligence

The Semantic Bridge technology stack from Onuma, Inc. bridges building geometry, operational information, and RDF knowledge graphs to enable AI-powered building intelligence. It was recognized at the 2026 buildingSMART openBIM Awards in Tokyo on Oct. 8th and will be showcased at Greenbuild 2026 in New York City, Oct. 20 - 23.

A free webinar on the implications of the Semantic Bridge on the building industry will be provided by buildingSMART USA on Nov. 18 at noon ET. [Register at this link.](#)

Pasadena, California, October 16, 2026 - Imagine asking your building, “**Which equipment serves this room—and how is it performing?**” and getting an answer grounded in the actual equipment and current operating data.

Semantic Bridge helps make that conversation possible.

Developed by ONUMA, it earned a **Special Mention in the Technology category at the 2026 buildingSMART openBIM Awards in Tokyo.**

A building’s information is often scattered across systems. A digital model shows where equipment is located. A monitoring system tracks how it runs. Other records describe which rooms it serves and how everything connects.

Semantic Bridge links those pieces so people—and AI—can make sense of them together. It helps different systems recognize the same equipment and understand its relationships, without requiring everything to move into one software platform.

The potential impact is enormous. Information created during design can keep helping owners operate a building for decades. Connected information could reduce manual detective work, improve maintenance, reveal energy-saving opportunities, and support better decisions. Open standards help owners carry that information across software systems and reuse the approach across many buildings.

The work is being implemented at the **PAE Engineers Headquarters Building**, Portland, Oregon, connecting digital information with real operating conditions. Collaborators include ONUMA, SkyCentrics, the Linux Foundation's C4SB community, and the National Institute of Standards and Technology. The Asset Leadership Network brings attention to accountability, trust, and responsible management.

With a planned Greenbuild 2026 showcase and an invitation for others to contribute, the ambition reaches far beyond one building: **making connected, useful building intelligence something owners can repeat across an entire portfolio.**

International recognition of ONUMA's Semantic Bridge at the 2026 buildingSMART International Summit in Tokyo highlights a significant step in using AI to advance the global building industry.

Semantic Bridge is the missing connection between the physical and semantic worlds of a building. On one side of the "bridge" is BIM and cloudBIM, representing the building's physical geometry, spaces, equipment, and locations. On the other side is an RDF Knowledge Graph database, representing the relationships among building systems, equipment, operations, and organizational requirements. The Semantic Bridge uses shared identities, human-readable meaning, and industry-established logic to connect these two sides and enable AI without forcing them into a single system.

An AI layer built on top of this connected information enables people to ask questions and have conversations with their buildings, drawing on both the physical model and the semantic knowledge graph.

Ai Yamamoto, buildingSMART IoT Interoperability Project Manager, and Kajima, BIM Manager, says, "Semantic Bridge demonstrates how BIM, semantic models, and operational building data can be connected beyond handover and into ongoing operations. This aligns closely with the interoperability challenges being explored through buildingSMART International."

Open building information provides the foundation. Semantic relationships connect the intelligence. Governance establishes accountability and trust. Real buildings demonstrate the value. Organizational governance, asset-specific intelligence, and operational systems need to manage buildings throughout their lifecycle to support desired mission

SEMANTIC: DEFINITION

In computer science, semantics is the rigorous study of the meaning of programming constructs and data, going beyond their physical shape or text (syntax). While syntax is like grammar rules that define what valid code looks like, semantics defines what that code actually does when executed or what it means logically. Semantics in AI provides machines with the ability to understand the meaning, context, and relationships behind data rather than just processing literal words, symbols, or pixel values.)

outcomes. The software can be also used by professionals outside the building industry to support their desired goals.

The Semantic Bridge received a **Special Mention in the Technology category of the 2026 buildingSMART openBIM Awards**, recognizing an approach that connects open building information with semantic knowledge graphs, operational systems, and emerging artificial intelligence capabilities.

The recognition comes as industry collaborators connected through the **Linux Foundation's Coalition for Smarter Buildings Foundation (C4SB)** and the **Asset Leadership Network (ALN)**. Onuma, Inc. also worked with other associations and institutions to demonstrate how open standards and collaborative development can help building owners move beyond static BIM deliverables toward connected, reusable information that supports real-world operations and long-term asset value.

The Semantic Bridge helped establish a repeatable RDF Knowledge Graph AI Database to be created for infrastructure. This allows AI applications and software systems to more easily access real-world data. This assists with improving operational performance of fixed assets, such as heaters, air-conditioners, air handlers, boilers, plants, and more.

Onuma, Inc. has been a long-time advocate of breaking down silos between building industry Associations and has won Awards for this type of work for more than 30 years.

"The Semantic Bridge is bringing together communities that have been working toward many of the same goals, but often from different directions," said Kimon Onuma, FAIA, Co-Chair of the buildingSMART USA Buildings Committee, Lead of the CloudBIM Working Group within the Linux Foundation's Coalition for Smarter Buildings (C4SB), participant in its Semantic Buildings Working Group, and collaborator with the Asset Leadership Network.

According to Onuma, "buildingSMART provides the foundation for open building information. C4SB is advancing the semantic relationships that connect that information to real building systems and operations. The Asset Leadership Network brings the essential perspective of governance, authority, accountability, and trust, grounded in asset management principles such as ISO 55000."

A Real Building, Not Just Another Digital Demonstration

At the center of the collaboration is the **PAE Living Building in Portland, Oregon**, an operating building serving as a real-world environment for testing connections among BIM, semantic models, building controls, and operational information. PAE has made its building available to collaborators to investigate practical challenges involving building systems, equipment relationships, energy performance, and ongoing facility operations.

Stephen Lothrop, Lead Electrical Engineer, PAE Engineers, says, “By connecting BIM, semantic models, and live building data through C4SB, cloudBIM, Semantic Bridge, and SkyCentrics, we're demonstrating a living system that can be replicated across buildings without platform lock-in.”

Working with ONUMA, SkyCentrics, and participants in C4SB, the project is exploring how open standards and technologies—including IFC, RDF, and ASHRAE 223—can connect building information with operational intelligence.

SkyCentrics provides access to live building systems and operational data, while ONUMA's cloudBIM represents the building's physical geometry, spaces, equipment, and persistent identities. Semantic Bridge connects this physical building information to the RDF knowledge graph, linking the building's physical components with the semantic relationships that describe how its systems work.

“The PAE Living Building demonstrates how open standards can connect BIM, operational systems, and semantic models. Just as important is the open, collaborative approach that allows others to build on the work,” says Tristan de Frondeville, CEO, SkyCentrics.

The U.S. National Institute of Standards and Technology is also involved in testing and engaging with the Semantic Bridge. Parastoo Delgoshaei, NIST Research Engineer, said, “The Semantic Bridge connects building information and operational data throughout the building lifecycle, enabling semantic interoperability. The collaborative, open source approach is as valuable as the technology itself because it allows the work to continue evolving through GitHub and community participation. Persistent identities and semantic representations reduce the need for manual mapping and enhance the self-configuration of analytics and control applications.”

The result is a working test environment in which building information can be connected to real operating conditions rather than remaining isolated in static models or documents.

Onuma says, “The invitation to the industry is simple: bring your use cases, bring your building information, and show what works. The PAE Living Building is demonstrating how open standards, semantic models, and operational systems can be connected today. The next step is to make these approaches repeatable across buildings and portfolios.”

Looking Ahead: Building an Open, Collaborative Ecosystem

The capabilities of the Semantic Bridge will be highlighted during **Greenbuild 2026 in New York City October 20-23**. Greenbuild is the annual international convention of the U.S. Green Building Council, which Onuma, Inc. has supported with web presentations earlier in the year.

“The Asset Leadership Network is honored that our Patron Member, Onuma, Inc., was granted a prestigious award last week, and next week will be presenting on its implications at the USGBC international Greenbuild convention in New York City next week,” said Bordenaro. “The work of

Onuma, Inc. has been “Green” and international for decades and they have openly shared paths for owners to follow to more effective outcomes and a more sustainable world.”

About the Organizations and Initiative

The goal is to move beyond isolated demonstrations toward an open ecosystem in which building information remains useful, connected, and trustworthy throughout the lifecycle.

Open building information provides the foundation. Semantic relationships connect the intelligence. Governance establishes accountability and trust. Real buildings demonstrate the value.

buildingSMART International

buildingSMART International is leading the digital transformation by enabling better collaboration and digital workflows through the solutions and standards it delivers. Digital workflows help you collaborate and communicate efficiency throughout all phases of the project and asset lifecycle.

<https://www.buildingsmart.org/about/what-we-do/>

Linux Foundation Coalition for Smarter Buildings Foundation (C4SB)

C4SB is an initiative bringing together industry participants to advance interoperable, semantically connected building systems through open technologies, standards alignment, and collaborative development. www.C4SB.org

Asset Leadership Network (ALN)

The Asset Leadership Network advances asset management practices, education, and collaboration to improve lifecycle performance, organizational decision-making, and the value delivered by physical assets. Its work supports the application of internationally recognized asset management principles, including ISO 55000. www.AssetLeadership.net

Semantic Bridge / ONUMA

Semantic Bridge is an ONUMA-developed approach connecting building information, persistent asset identities, semantic knowledge graphs, and operational systems through open interfaces. The work is being advanced through collaboration with C4SB participants and demonstrated using the PAE Living Building. www.ONUMA.com

PAE Living Building

Located in Portland, Oregon, the PAE Living Building provides an operating environment for investigating how digital building information, controls, energy systems, and semantic relationships can support more intelligent and sustainable building operations. www.pae-engineers.com

SkyCentrics

SkyCentrics provides technologies for connecting building equipment and operational systems, supporting access to live building information and integration with semantic building models.

www.SkyCentrics.com

U.S. Green Building Council

U.S. Green Building Council is non-profit organization founded in 1993 that promotes sustainability in building design, construction, and operation. www.USGBC.org