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News Release
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KAWNEER PROJECT PROFILE:

**LAWRENCE BERKELEY NATIONAL LABORATORY – THE MOLECULAR
FOUNDRY**

Taking Sustainability to the Edge

Sitting high upon a steep hillside overlooking the city of Berkeley, with views that extend to the San Francisco Bay, the Lawrence Berkeley National Laboratory Molecular Foundry building immediately strikes viewers with its dramatic design, imaginative views and daring placement – with a portion of the building jutting out 45 feet over the hillside.

The Molecular Foundry is the first of five U.S. Department of Energy Nanoscale Science Research Centers and the only one on the West Coast. Housed inside an \$85 million, 95,000 square-foot building, it serves as a center for collaborations among researchers from diverse disciplines including, materials science, biology, electrical engineering, physics and chemistry. With cutting-edge amenities and unparalleled research capabilities, the Molecular Foundry encourages leadership in nanotechnology research. In addition to leading research, the Molecular Foundry aims to make its mark on the future by helping to pioneer energy efficiency and environmental design in research facilities through its Leadership in Energy and Environmental Design (LEED) Gold certification.

From early in the design stage, the concept for the Molecular Foundry was to create a sustainable, energy-efficient building representative of the groundbreaking work conducted within the facility. The SmithGroup of San Francisco was selected as the project's architect and they contacted Kawneer, who provided product information and system recommendations for the project's architectural aluminum elements. The Molecular Foundry's LEED Gold certification was the first gold certification awarded to a building in the City of Berkeley. As a result of the energy saving features throughout the building, it consumes 28 percent less energy than the already rigorous California building efficiency standard. The Molecular Foundry has also begun measuring its energy performance to determine the performance in this building and to help plan for future building projects.

Design Highlights

- After driving down a winding road, visitors to the Molecular Foundry are greeted by the impressive building. With a portion of the building hanging over the hillside, it appears as though the slightest movement of the earth below would send the building careening downward. The bold use of steel, concrete, aluminum and glass throughout the building adds to the Molecular Foundry's overall impact and imposing appearance. Extensive access to natural daylight in the building design was a key "green" feature of the project. The building also features custom 11-inch-deep mullion covers, which were designed to serve as light shading and offered a creative way to provide sunshading and maximize energy conservation.

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Challenges

- The site of the building was a challenge throughout the design and construction process. The Molecular Foundry was cut into the hill with only one side open onto the street, making it difficult for placing and navigating equipment. There is also a section of the building that cantilevers over the hill, which added to the challenge.
- The site's high seismic force level added another level of complications to the project. Located within close proximity to the Hayward fault, the Molecular Foundry is susceptible to heavy earthquake activity, which could cause the building to slide down the hill in the event of an earthquake. To prevent this from happening, the building is anchored at its base with concrete piers extending approximately 50 feet into the ground. Movement also needed to be accommodated into the system.

Solutions

- To address the movement needs within the building, Kawneer provided custom head anchors for its 2250 IG (Inside Glazed) curtain wall that were incorporated into both the windows and curtain wall to allow interstory drift, or movement between floors during earthquakes. The custom head anchors were also unique because of their channel shape, with a leg extension, or protrusion, coming out of the channel. This design enabled Royal Glass Co., Inc., the project's glazing contractor, to attach the head anchor through the back side with a head clip.
- For a more streamlined appearance, SmithGroup wanted to use a small profile curtain wall with slimmer sightlines. Kawneer's 2250 IG provided a narrow 2-¼-inch sightline along with incidental water management capability. In addition, 2250 IG allowed for the frames to be preassembled in the shop and because of the design challenges with the hill and cantilevered floors, it allowed for a majority of the building to be glazed from the inside. Finally, 2250 IG offered the added advantage that it could be used as a curtain wall as well as ribbon window applications.
- Kawneer's 1600 Wall System^{®1} curtain wall, 7225 Non-Thermal Windows and 500 Wide Stile Entrances were also utilized in the project. 1600 Wall System^{®1} was used on approximately 10 percent of the building and has been tested according to industry standards for seismic performance. The Project Out 7225 Windows help improve air circulation and provide natural ventilation, increasing occupant comfort, well-being and productivity. With 5-inch vertical stiles and top rail and a 6-½-inch bottom rail, Kawneer's 500 Wide Stile Entrances create a monumental visual statement and offer superior strength.

Featured Products

- Kawneer's 1600 Wall System^{®1} curtain wall, dual purpose 2250 IG (Inside Glazed) ribbon window and curtain wall system, 500 Wide Stile Entrances, 7225 Non-Thermal Window (Project Out) and custom covers on 2250 IG.

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For more information, high-resolution images, or to determine an opportunity for a project profile, please contact:

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About Kawneer

With more than 100 years of innovation and experience, Kawneer North America is headquartered in Norcross, GA, and is the leading manufacturer of architectural aluminum products and systems for the commercial construction industry. Kawneer is part of Alcoa's global Building and Construction Systems (BCS) business unit headquartered in Geneva, Switzerland. Alcoa BCS manufactures and markets architectural systems and products in North America, Europe, Asia and the Middle East. Alcoa is the world's leading producer and manager of primary aluminum, fabricated aluminum, and alumina facilities, and is active in all major aspects of the industry. For more information on Kawneer or its products, please visit www.kawneer.com.