

EXTREME Makeover

BY RON KLEMENCIC, S.E., P.E.

Nu Skin Enterprises' Utah campus gets a fresh new look.



THE NU SKIN INNOVATION CENTER brings a new face to Nu Skin Enterprises.

The anti-aging product company's new Provo, Utah, headquarters houses research laboratories, conference spaces, two cafés, a retail storefront, a fitness center, three floors of executive offices and a data center in a series of elegant, light-filled spaces.

A Structural Triptych

The 170,000-sq.-ft., \$74 million Innovation Center is comprised of three primary elements: a more modest three-story building to the north that responds to the scale of Provo's historic Center Street; a six-story steel-framed building to the south; and a four-story steel atrium linking the new buildings to each other and to the existing Nu Skin office tower. The atrium is the heart of the new campus, acting as a glazed spine and entry hall designed to host thousands of people from around the world and to accommodate multiple activities and events concurrently.

While the framing for the north building is concrete, the south building and atrium use structural steel framing. The typical framing for the south building is comprised of structural steel columns supporting composite steel beams and composite floor slabs with 3 in. of normal-weight concrete over 3-in. steel

deck. For the south building, W14×90 to W14×342 columns were used; HSS20×8 and HSS18×6 columns were used for the atrium. The most common beam sizes were W18, W21 and W24, and W24, W30 and W33 were the most common girder sizes; the largest were W30×235, W33×118 and W36×210.

To eliminate columns in a large meeting room at the first floor, six tower columns are transferred at the third floor. These columns are supported by two 67-ft-long built-up steel plate girders spanning in the north-south direction and two 85-ft-long story-deep trusses spanning in the east-west direction.

Crowning the south building is an airfoil-shaped mechanical penthouse, a nod to the barrel-vaulted forms of the original Nu Skin tower (which used the same fabricator as this project, Tech-Steel). This sharply curved, steel-framed element is one of the exterior highlights of the project: the radii of the roof beams vary from 109 ft, 8 in. all the way down to 3 ft, 4 in. W18×65 and HSS10.000×0.500 are used at the braced frames at each end of the barrel vaults, and the typical curved beams are W18×40 and are spaced at 11 ft on center.

The exterior of the building is composed of sleek, transparent volumes anchored by crisp, aluminum-clad core spaces. Delicate sunshades along the south elevation of the entry hall and offices shade the interior spaces from direct sunlight while framing

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- ▼ ▼ Two steel-framed bridges span across the atrium, which connects the two new buildings, in the north-south direction.



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Modern **STEEL** CONSTRUCTION

views of the nearby Wasatch Mountains. Slender HSS columns (6 in. in diameter and 18 ft tall) support a canopy on the south elevation that extends the interior spaces 28 ft into the landscape, while providing shade and protection during inclement weather.

Glass and Steel Heart

The atrium is the heart of the Nu Skin campus. At the entrance, a granite fountain and sculpted marble reception desk greet visitors to the space. Further west, telescoping glass walls open to a 500-seat meeting room and offer views of a new garden and the campus to the south. Across from the meeting room, a monumental staircase—a built-up plate assembly—draws visitors and staff up to the data center, laboratory and office

levels that are connected by circulation paths bridging across the space. The two second-floor plate girders for the atrium, (6 ft, 6 in. deep) are suspended from story-high trusses above, and four temporary columns were used to support the girders while the trusses were field-assembled.

There are two steel-framed bridges that span across the atrium in the north-south direction, one at the east end (which spans 41 ft) and one at the west (47 ft long); both are located at the third level. The bridge girders are W24×68 beams rigidly connected to the south (steel) building and resting on slide bearings on the north building. The slab of the bridges consists of 2.5 in. of concrete on 2-in. steel deck supported on W8×10 purlins that span between the bridge girders.



▲ ▼ Above the atrium, glass conference rooms cantilever into the space, and a gently curving ceiling of translucent glass is suspended below steel trusses supporting the skylight roof, mitigating the intense Utah sunlight and softening the interior space. There are three conference rooms—one at the third level that cantilevers 16 ft and two at the fourth level that cantilever 11 ft.



Above the atrium, glass conference rooms cantilever into the space, and a gently curving ceiling of translucent glass is suspended below steel trusses supporting the skylight roof, mitigating the intense Utah sunlight and softening the interior space. The chords of the steel trusses supporting the curved glass ceiling are composed of two C4x5.4s back to back; the members forming the web are HSS3x1½x¼. Purlins spanning between trusses are HSS4x3x¼. There are three conference rooms—one at the third level that cantilevers 16 ft and two at the fourth level that cantilever 11 ft.

The glass roof is supported by steel girders that span between the north and south buildings, along with intermediate steel beams and tension bracing, and the translucent glass

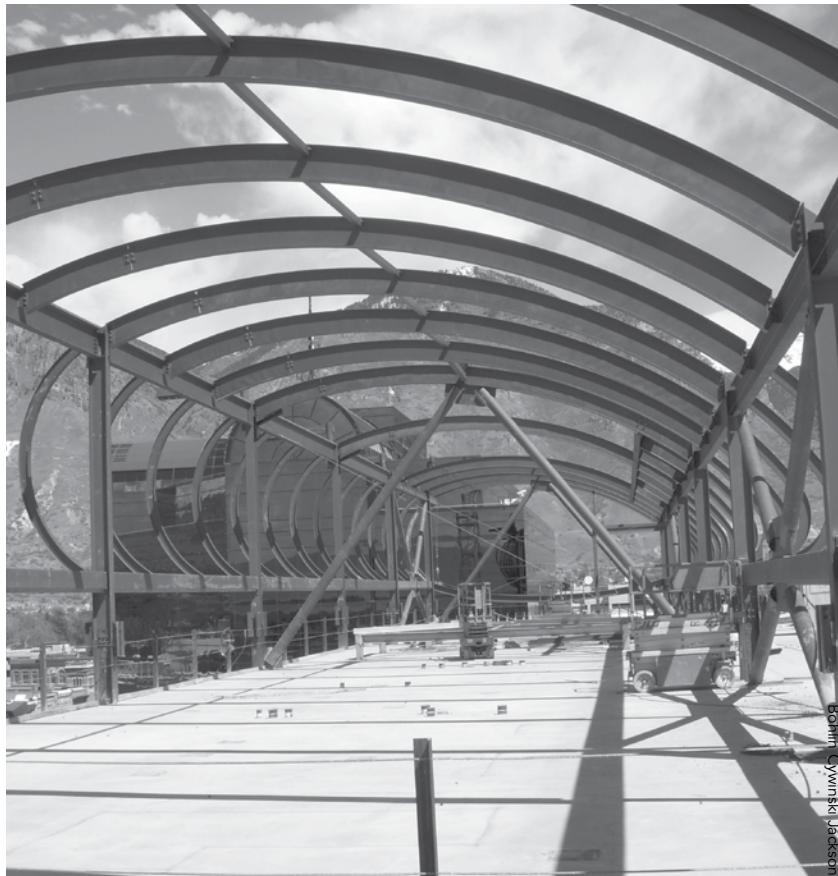
ceiling is hung from trusses, which are in turn suspended from the roof girders. The 10-ft, 6-in.-wide feature stair rises 29 ft between levels 1 and 3 and runs 93 ft continuously along the atrium. The stair stringers and treads are both supported by steel channels, and the bridges spanning the atrium are supported by steel beams.

The conference rooms cantilevering into the atrium are supported by shallow beams (W10x12), post and tension rods, and the four-story-high glass walls are supported by primary and secondary structural steel.

Seismic design is a primary consideration in Provo (Provo is a high-seismic zone and the structure considered Seismic Design Category D and the soil is Site Class D) so the atrium roof



Nic Lehoux Photography Ltd.



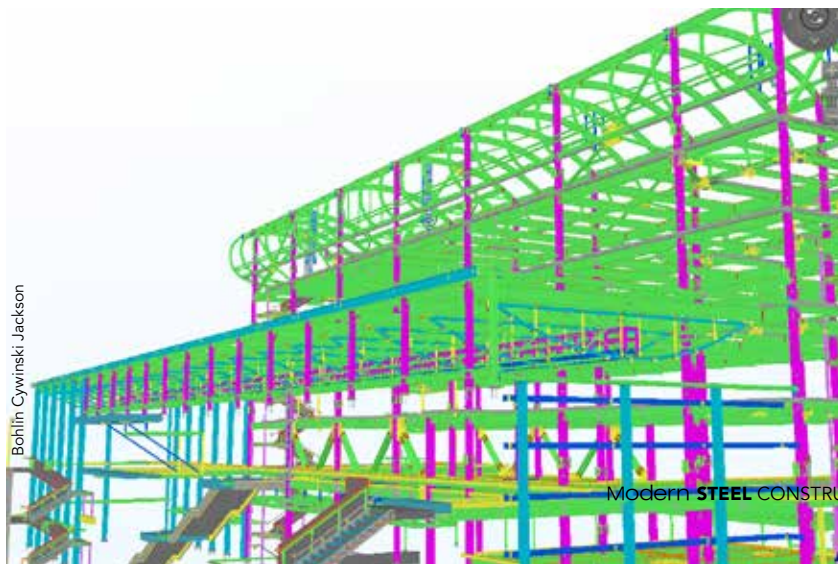
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▲ ▼ Crowning the south building is an airfoil-shaped mechanical penthouse, a nod to the barrel-vaulted forms of the original Nu Skin tower.



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▲ The steel-framed mechanical penthouse uses roof beams whose radii vary from 109 ft, 8 in. all the way down to 3 ft, 4 in.



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▲ The translucent glass ceiling is hung from steel trusses, which are in turn suspended from the roof girders.

and bridges are seismically separated from the north building with an expansion joint. Therefore, the North and South Buildings are seismically separated with an expansion joint at the north side of the atrium. Lateral forces for the both buildings are resisted by shear walls, which minimize relative movement between the buildings during seismic events. Columns from the atrium roof rest on Teflon coated plates on the top of the concrete structure allowing them to move independently. The north-south spanning bridges use a similar detail where they meet the concrete structure of the north building. ■

Owner

Nu Skin Enterprises

General Contractor

Okland Construction

Architect

Bohlin Cywinski Jackson

Structural Engineer

Magnusson Klemencic Associates

Steel Team

Fabricator

Tech-Steel 

Detailer

Axis Steel Detailing, Inc. 