

Native American Wellness Center Framed with Engineered Wood

By Ronald I. Kessler, A.I.A., and Donald Jaenicke

The new 35,000 square foot Seneca Nation Community Health and Wellness Center in Irving, N.Y. is a showcase of native Americana. And unlike many other medical buildings, the building's atrium space and multi-purpose room are framed with rustic glued laminated (glulam) timber. The laminated timber beams and trusses create a natural look with strength, uniformity, and a rustic appearance (*Figure 1*).

The 2-story building was planned to reflect Seneca culture through the use of Seneca motifs and patterns in a unique color scheme. Large expanses of wall space were created to allow Native American artwork to be displayed. The Seneca Nation is a member of the Eastern Woodlands tribe and massive glulam columns reflect the ambiance of this heritage to help create a serene, healing environment.

The building houses offices for the Seneca Nation Child and Family Services/Human Services departments. A circular 3,300 square foot multi-purpose room includes a sound system, dimmable indirect lighting, and a sport flooring surface allowing multiple functions including aerobics classes, lectures, and community dinners. Other spaces include an exercise room and a kitchen for nutrition and wellness instruction.

Building Code Considerations

The International Building Code (IBC), as adopted by New York State, was used as a guide for design and construction by the sovereign Seneca Nation. Since out-patient clinics are defined as Type B use group per the IBC, the maximum allowable area is 90,000 square feet (unsprinklered) for Type IV, or heavy timber, construction with 100% open perimeter. The requirement for an NFPA 13 sprinkler system arose from the use of the atrium as a required exit. The office wings flanking the atrium are of Type IIB construction.

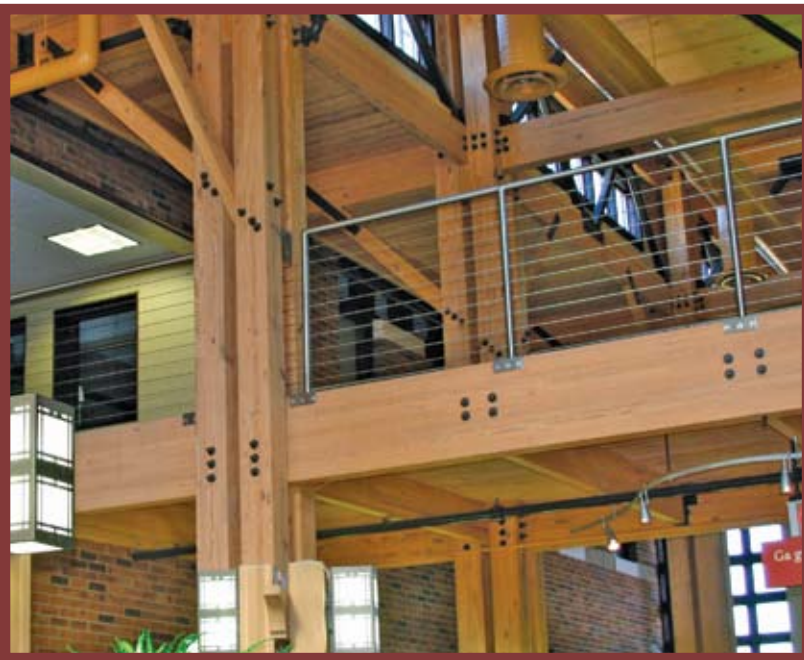


Figure 2: Exposed roof trusses are a combination of glulam top and bottom chords with steel-tube webs. Structural framing, which supports the "bridge" and roof trusses is also glulam timber which is a cluster of four columns.



Figure 1: The Seneca Nation Community Health and Wellness Center has an atrium space and multi-purpose room framed with rustic glulam timber.

Materials

The multi-purpose room is framed with radial 8-inch x 36-inch glulam timbers spanning nearly 40 feet and cantilevered from an interior column 7 feet to the roof edge. The exposed roof trusses in the atrium span 17 feet and are a combination of 5-inch x 12³/₈-inch glulam top and bottom chords with steel-tube webs (*Figure 2*). The structural framing, which supports the "bridge" and the roof trusses, is also glulam timber, which is a cluster of four 4-inch x 6-inch columns with spans from 28 to 38 feet. The massive "cluster" columns replicate trees. The combination ceiling and roof is 2-inch glulam decking, which complements the timber framing. Glulam was also used to construct the stair stringers and "bridge" which spans the atrium, connecting the two office blocks (*Figure 3*).

Furring, sheathing, and finishing were eliminated with glulam construction, since glulam materials arrived at the jobsite prefinished. This made glulam unique as a structural component for this type of building.

Exposed timber framing avoided the need for fire protection wrapping. The performance of heavy timber construction under fire conditions is well documented, and provisions in the IBC allow calculation of fire resistance ratings for exposed wood members. Wood retains a high percentage of its original strength for a long period of time in fire conditions.

Glulam members were connected using ³/₈-inch steel plates and conventional split rings. The column clusters allowed efficient "sandwiched" connections to load the carrying trusses and framing members (*Figure 4*).

Environmental Elements

The building features environmentally conscious design elements. Daylighting integrates natural light on the cloudiest of days, promoting electricity conservation while creating a space conducive to wellness and healing. Another energy saving design innovation is radiant heat throughout the tile floors, providing more consistent warmth throughout the space.



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Figure 4: Glulam members were connected using steel plates and conventional split rings. The column clusters allowed efficient "sandwiched" connections to load the carrying trusses and framing members.

The \$6.2 million building incorporates "green" building technology through the use of energy efficient heat recovery units and recyclable finish materials, including the glulam timbers which are a renewable resource. Glued laminated wood arches, beams, and trusses are a renewable resource, because U.S. foresters plant 5 million trees each day to insure a future supply of wood.

According to the American Institute of Timber Construction (AITC), glued laminated timbers are a stress-rated engineered wood product comprised of wood laminations, or "lams," bonded together with strong, waterproof adhesives. This means that no large, old-growth trees are needed in the fabrication of glulam. About 25% of all glulam beams and trusses manufactured in the U.S. are used in commercial and institutional construction, a sizeable increase over the past five years, according to the AITC.

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Donald Jaenicke has spent his entire business career in the forest products industry including nine years as marketing director at the Weyerhaeuser Company, nine years as ad manager of American Plywood Association, and twelve years as director of advertising and P. R. for the American Institute of Timber Construction (AITC). Don's efforts for AITC have earned his agency a national award for public information excellence.

Credits:

Owner:
Seneca Nation, Irving, NY

Architect/Engineer:
Harrington Sandberg Architecture & Engineering, Jamestown, NY

Contractor:
Scanlon/Ciminelli, Inc. Buffalo, NY

Glulam timber laminator:
Rigidply, Inc. Richland, PA

Glulam Erector:
Associated Components, Lafayette, NY

Structural Engineering Consultant:
Syracuse Engineers, Buffalo, NY

The Seneca Nation Community Health and Wellness Center was fabricated with structural glued laminated timber. The timber framing helps avoid an "industrial looking" interior. It also provides significant aesthetic and cost benefits. ■



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