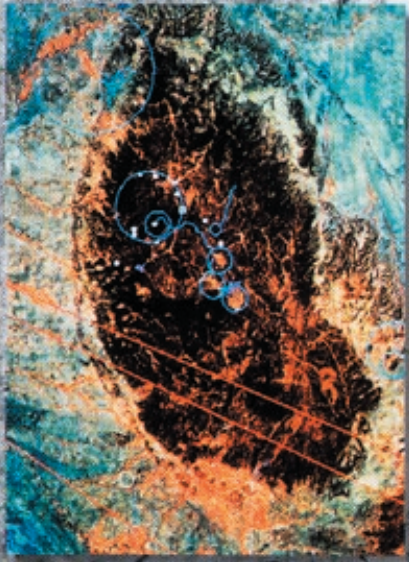


In devising a plan for Sinte Gleska's new campus (this page), RoTo took cues from the tribal "star knowledge," or cosmology, as well as from the natural features of its prairie site (opposite): the topography, a creek and pond, and distant mountain views.



# PROJECT DIARY On the Great Plains of South Dakota, **ROTO ARCHITECTS** helped reenvision a campus for Sinte Gleska, the first Native American university.



by Sarah Amelar

**1971-1991** RoTo didn't arrive on the scene until 1994, but this story begins as far back 1971, when Sinte Gleska first opened its doors. Not yet a university, it began as the nation's second tribal college. (Today, there are 31 tribal colleges and universities.) Its founders saw a pressing need to reclaim the Sicangu Lakota culture at a time when Native American languages, lore, and rituals, across the

country, faced danger of extinction.

Long before, white conquerors had forced these nomadic people onto reservations, lopped off the men's braided hair in an act of virtual castration, and insistently altered the native diet, replacing the Great Plains buffalo with cattle. Ultimately, boxy, federally funded housing substituted for tipis. The Black Hills, the Lakota tribes' most sacred site, had been taken from them and carved with American presidents' heads (at Mt. Rushmore). For decades, the U.S. government enforced assimilation by shipping Native American children to boarding schools that some graduates still describe as "prisons for young Indians"—and legally restricted tribal religious freedom. Even the oral tradition of storytelling, an essential and integral part of tribal life, was gradually slipping away.

Sinte Gleska College, named for "Spotted Tail," a 19th-century Lakota leader, began with humble means and lofty aspirations. One of its primary goals was to promote tribal autonomy, but obstacles lay in the path. Sinte Gleska's founding and current president, Lionel Bordeaux, a powerful-looking figure with strong Native American features and hair swept back in a style reminiscent of Elvis Presley, initially encountered opposition when he sought federal funds for the college.

"What initially attracted me to South Dakota was the great scale of the landscape—the earth and sky," recalls Michael Rotondi, FAIA, of Los Angeles-based RoTo Architects. When Rotondi and partner Clark Stevens first drove down the straight stretch of Route 18 on South Dakota's Rosebud Sioux Reservation and caught a glimpse of an illuminated marquee flashing college offerings, they could not have anticipated the cultural wealth they'd encounter behind it.

Rotondi and Stevens had come to the reservation to design a building for Sinte Gleska, the first Native American university, but their project acquired unexpected dimensions. Instead of creating one building, they ended up designing two and an entire campus plan. As architects, planners, researchers, economic think-tank operators, and occasional construction workers, RoTo took on the challenge of guiding the 1,600-student institution from its origins in trailers toward a more expansive and ambitious campus.

The process of reinventing the campus was complex, at times difficult. It is, after all, extraordinary that an institute of higher education formed, and flourished for 28 years, on a remote reservation in some of the nation's poorest counties—a place where unemployment exceeds 70 percent. Complicating matters, Rotondi and Stevens came to Rosebud as cultural outsiders, as white men from Los Angeles. "I kept wondering," says Stevens, "if what we had to offer was appropriate." At first, he recalls, "we were unable to ask the right questions, and the [Sicangu] Lakota people seemed unable to tell us what they wanted. Perhaps because nobody had asked them before, but more likely, they knew exactly what they valued and chose not to say. They felt, I suspect, in light of their cultural and life experiences that we were not to be trusted with that knowledge."

The architects realized they had at least as much to learn as to teach. They would need to earn their clients' trust in more profound ways than in typical architect-client relationships. The buildings they would ultimately complete—a student and a technology center—would stand as small pieces within the broader history of whites in Native American territory and the visionary tale of Sinte Gleska's existence and survival.

**Project:** Sinte Gleska University Technology Building

**Architect:** RoTo Architects Inc.—Michael Rotondi, FAIA, and Clark Stevens, principals; Michael Volk, project architect; Jim Bassett, on-site representative; Jim Bassett, Kenneth Kim, Michael Volk, collaborators; Carrie DiFiore, Qu H. Kim, Jarkko Kettunen, Craig Stewart, James Malloch Taylor, project team.

**Engineer:** Ove Arup & Partners (struc-

tural, mechanical, electrical); Dakota Railway Consultants Inc. (civil)

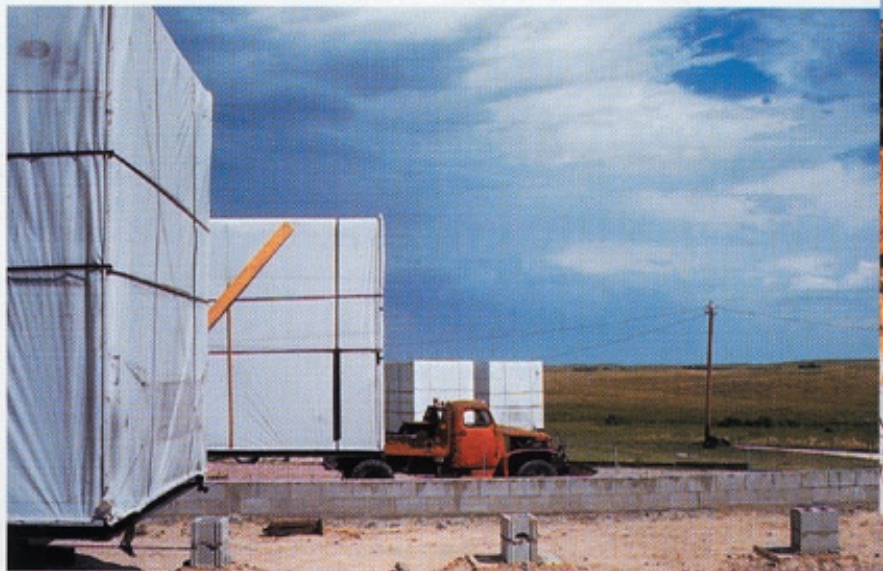
**Design consultant:** April Greiman

**Project management:** Bruce Biesman Simons

**General contractor:** Shingobee Builders

**Timber construction:** Paul Baines Timberframe Construction

**Concrete and rammed earth:** Native American Construction



"Just forget higher learning," he was told. "You people would be better off doing arts and crafts—beadwork—or raising hogs." But Bordeaux saw education as a critical means for tribal triumph over adversity, and he persevered.

Sinte Gleska gained university status in the early nineties with bilingual courses in Lakota and English, ranging from tribal government to Lakota history, from much-needed human-services training to environmental sciences. The campus, sited in Mission, S.Dak., evolved with scant funding on an ad hoc basis: more trailers were simply added, as needed, along the way.

**1991-1994** In the fall of 1991, a quasi-miraculous event befell Sinte Gleska. Patrick Lannan Jr., president of the Lannan Foundation, a family fund supporting contemporary art and literature, was driving cross country and stopped in unannounced at the campus. Lionel Bordeaux happened to be there and welcomed the visitors. Soon after, this encounter led to grants ultimately exceeding \$10 million. (The visit also inspired the foundation's formation of its Indigenous Communities Program, which now supports Native American culture, language, and land reclamation, as well as tribal education.)

By March 1994, Lannan had invited Michael Rotondi—an

architect he knew from the days when Rotondi headed the Southern California Institute of Architecture (SCI ARC) and the Lannan Foundation was its next-door neighbor—to travel to Sinte Gleska and design a building there.

The architects came away from that first visit with the conviction that Sinte Gleska University (SGU) needed an entire campus plan, not merely a single building. "They'd never had a chance," observes Stevens, "to define how their physical plant relates to their goals and view of themselves as a tribal college within the community." The Lannan Foundation agreed to hire RoTo to devise a strategic campus plan, but recalls Rotondi, "conventional programming meetings—trying to gather a lot of information from many people in neatly allotted parcels of time—just didn't make sense out there." Also, the community seemed to view RoTo with suspicion and distrust, based perhaps on past experience. The university's previous attempt to construct a major large-scale building had foundered 18 years earlier, due in part to loss of funds. This structure's unfinished hexagonal, concrete-block shell remained as a monument to its failure, leaving tribal members skeptical of RoTo's commitment to produce more satisfying results.

At an impasse, Rotondi and Stevens changed course. Conversation alone was not producing answers, so they decided to make something. Not a building of their own design, but a 16-by-24-foot straw-bale house for a

tribal elder, a project akin to a barn raising, initiated and executed by tribal members. Stevens and another RoTo architect, Jim Bassett, spent a week on the reservation as construction laborers. They went to learn, not to direct, and, as their coworkers slowly opened up, they began to hear stories, jokes, and myths that would inform their architecture at Sinte Gleska.

RoTo's student center integrated prefabricated building modules (above left), stripped to their steel frames. Straw bales (above right and opposite left) became an infill wall, built by local junior high students. During construction, other tribal members honed such skills as timber framing and carpentry (this page, bottom).





The insulating straw-bale infill (left) was later coated with gunnite. An existing foundation and hexagonal concrete-block shell (above) were incorporated into the student center. The hexagon became an open-air gathering space with a firepit.

**1994-1996** RoTo's campus-planning research took on a similarly informal character. The architects invited tribal members to dinners, listened to more stories, gained respect for what the Sicangu had already accomplished, and gradually heard the community's grievances with the existing campus. The current location, some suggested, blocked "spirit paths," and since the old campus lay on territory under civil jurisdiction (though on the reservation), it never really felt like tribal property. To find a new site, the architects journeyed across the landscape as elders explained the meanings of different locations. Finally, the university selected a site in Mission's adjacent twin town, Antelope, which lies on tribal land.

As the planning proceeded, RoTo embarked on its next SGU project, a student center, which Rotondi maintains, "We didn't intend on doing—but we decided we needed to build something right away." The tribe still seemed wounded by the unfinished-building fiasco 18 years earlier: Clearly, the typical two-to-three-year period of design and construction would not yield tangible results fast enough.

"We thought it would be good to show them, without delay, what they could do," says Rotondi, "with a little imagination, using materials and methods already available to them." For the student center, the architects encouraged the university to order four trailerlike, 12-by-60-foot building modules from downsizing Defense Department contractors. With no construction drawings per se, RoTo used the 18-year-old concrete-block shell as partial foundations, and straw bales coated with gunnite as infill for the modular frames. The construction crew consisted of SGU's maintenance staff, with local junior high school boys doing the straw-bale work. A disused tribal sawmill was gradually reactivated. This design-build project provided a year's employment for a mostly tribal crew and trained a local workforce to erect the next Sinte Gleska building.

Enthusiasm grew. "People started crawling out of the woodwork to see this funny thing going up on the 'Res,'" says Rotondi. "And when the straw bales went up, there was joking that the cows would eat the building. When it was done, everyone seemed really pleased." One milestone in earning tribal trust was RoTo's decision to relocate architect Jim Bassett to the Rosebud Reservation to work on the project. Bassett stayed three years. "They said it was like sending one of our own into a hostile neighboring tribe," Rotondi recalls. "At that point, they saw we were serious."

**1996-1998** Meanwhile, RoTo Architects began to learn about "star knowledge"—an astronomy and astrology that shapes traditional Lakota worldview, religion, and everyday life—which inspired the campus plan. In this cosmology, the earth's features mirror the constellations. A Lakota symbol of the nature of the universe is the Kapemni: two cones joined at the apexes, representing the meeting of sky and earth worlds at the horizon. The tipi, with its crossed poles, embodies the Kapemni. Each spring, for three months before the equinox, this nomadic people would make a ceremonial journey, following the sun's path through constellations corresponding to sacred Black Hills sites. The pilgrimage would symbolically reenact the creation of the universe. Throughout the year, star knowledge told tribes where to encamp. They drew imaginary lines emanating from constellations and sacred earth sites, placing importance on the points of intersection.

When the architects discovered that many young tribal members knew nothing of this cosmology, they resolved to make the campus plan an instrument of teaching, an embodiment of sacred stories and myths. Though the idea of creating permanent structures for a nomadic people may seem paradoxical, Stevens and Rotondi recognized the importance of the spaces between buildings. They sought to design a campus that would encourage its inhabitants to wander the territory and generate more stories. The selected site, however, was initially problematic because a boarding school had once occupied it and left painful associations. But the land also had sacred aspects—natural beauty, a creek and pond, and distant mountain views—and was finally accepted after a purification-by-fire ceremony.

At last, RoTo was ready to erect its first building on the new campus. Once again, however, the plans abruptly shifted course. Right after the architects had completed construction documents on a large multipurpose building—to include ceremonial assembly space, as well as athletic facilities—Sinte Gleska received a National Science Foundation (NSF) grant to refit an existing building with state-of-the-art computer technology for expanded general and computer science curriculums. The grant would upgrade a distance-learning program that the American Indian Higher Education Consortium had begun at SGU. Distance learning links tribal colleges by interactive live-video facilities—two-way broadcasting studios/classrooms—that significantly expand the course

The technology building's two pre-engineered standing-seam structures are painted earthy brown to blend with the landscape, while the

enclosed bridge reflects the steely sky. (Clad in zinc, this connecting element recalls the titanium-skinned Guggenheim museum in Bilbao,

Spain.) The steel-skinned buildings were customized to eliminate the off-the-shelf eaves and impart the buildings with a more monolithic solidity.







## A MAINE BOAT BUILDER TEACHES TIMBER FRAMING TO A TRIBAL CREW



The predominantly tribal construction crew crafted the building's wooden components with indigenous pine timbers. While working on the student center, RoTo learned of the reservation's deactivated sawmill and initiated its revival.

The mill had operated in fits and starts, corresponding to the sporadic nature of construction projects on the reservation. Since the beginning of work on the technology building, the sawmill has functioned almost continually.

Looking for local talent and skilled craftspeople, Rotondi and Stevens met Paul Baines, a Maine boat builder and experienced timber framer, who had worked on the neighboring Pine Ridge Reservation. Baines agreed to come to Rosebud, where he led a carpentry crew and taught timber framing.

For the technology building's smaller steel-skinned structure, to the east, RoTo experimented with a hybrid of readily available pre-engineered steel cladding and hand-hewn timber framing. Thus, the interior's pegged, nail-free joinery juxtaposes the exterior's standing-seam steel.

The architects also incorporated rustic half-sawn timbers, remnants of the squared timber-making process, into a brise soleil. S.A.



offerings at each campus. Unfortunately, no existing building was available, and the university risked losing the NSF grant.

Suddenly, a new technology building became the priority. The Lannan Foundation agreed to reallocate funds for RoTo to design it. To save time, the architects integrated into their scheme two pre-engineered steel-skinned structures, the type often used in agricultural and light-industrial settings.

The building's program breaks into two major components: labs or classrooms (including three interactive video studios) and public-oriented student-gathering areas with faculty offices. These components, respectively, occupy two steel-skinned structures linked by an enclosed zinc-clad bridge. Painted an earthy brown, the pre-engineered skins blend with the landscape, while the steely-gray zinc reflects the big sky. RoTo set out to employ as many tribal workers as possible, hiring craftspeople and foremen who were willing to teach construction methods. Given the steep learning curve for much of the workforce, the architects tried to schedule the most skilled tasks late in the construction process.

Like the campus plan, the 17,000-square-foot, two-story technology building drew inspiration from stars and planets and was conceived as a teaching tool. With the two steel-clad structures sited along the sun's solstice paths, the building's bridged cleft frames the summer sunrise and winter sunset. The connector, or bridge, follows the shape of a major constellation in plan, and its vertical panoramic window, like the Kapemni, reveals equal expanses of sky and earth.

The placement of windows and relative transparencies of materials allow the sun to track a course through the building. This relationship to the sun is especially evident in the interior's most inventive and sculptural elements: two slightly skewed stairways (one in the east structure and the other in the west) and an inverted tipi (on the east building's second floor). A lounge within a lounge, the tipi is clad in translucent rice-paper-like polycarbonate sheeting. When the rising summer-solstice sun and setting winter-solstice sun pass through the Great Pipe constellation (known in other cultures as the Big Dipper), the Lakota say it "lights the pipe," signaling the start of the ceremonial spring journey. When this celestial event occurs, the technology building's inverted tipi, like a pipe bowl, is lit by the sun. Its glowing form becomes visible to the outside through surrounding windows.

Because the west stair also stands along the solar path, RoTo gave it perforated risers to filter the sun's rays. Adding to the cosmological metaphors and alignments, the architects placed simple pendant halogen fixtures throughout the building's main circulation route in the configuration of specific constellations.

Whether the multiple celestial and poetic allusions will be experienced, or even noticed, remains an open question. With a nonjudgmental shrug, one laconic faculty member recently referred to the building's "gadgets—you know, the leaning poles, the tipi." Rotondi briefly considered making an explanatory booklet telling visitors exactly where to stand, but he now says, "I hope people will gradually start to decode the work like archaeologists, in the same way they read the land and sky. One day, someone may find him- or herself standing there at sunset and suddenly see all kinds of things."

**1998-1999** Completed in two years and dedicated in the spring of 1999, the new building with its technological offerings has generated much excitement on campus. An unprecedented number of Sinte Gleska students have flocked to the computer sciences department. Perhaps some day, through distance learning, the university will broadcast courses in Lakota studies, taught by its own



A timber brise soleil shades extensive glazing on the building's south face (above). Looking east from the west structure's roof deck (below), the

inverted tipi—a lounge within a lounge—is visible. Its translucent skin glows with the setting and rising solstice sun, or when lit electrically at night.







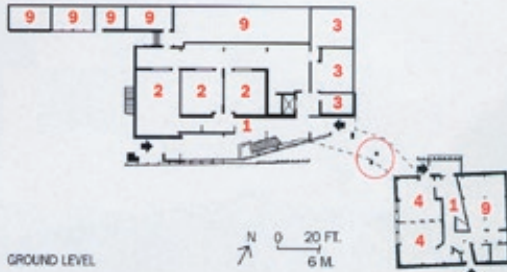
Over the technology building's main circulation path (below right and above), simple halogen fixtures hang in the configuration of constellations. The

west stair's perforated risers (below left and right) filter the sun's rays. From the inverted-tipi lounge (opposite), prairie views unfold.

- |                      |                               |
|----------------------|-------------------------------|
| 1. Lobby             | 6. Study lounge               |
| 2. Distance learning | 7. Conference (inverted tipi) |
| 3. Video             | 8. Offices                    |
| 4. Classroom         | 9. Mechanical or utility      |
| 5. Laboratory        | 10. Roof terrace              |



UPPER LEVEL



GROUND LEVEL





native experts, to nontribal universities across the country.

Though the potential of the campus plan and technology center are tremendous, it would be misleading to present them as cure-all solutions. The flip side of this bright new building is the challenge of attracting technical science faculty on tight salaries, overcoming student attrition, and covering the added operations and maintenance costs. To trim energy costs, RoTo purposefully gave the building a passive-solar orientation to the south with extensive glazing, an exterior brise soleil, and an interior rammed earth wall that acts as a heat sink. Nonetheless, the facility is large scale by SGU standards, and postconstruction expenses remain significant.

RoTo went on to clear a site for the large multiuse building, but partly in a cost-cutting measure, the university hired others to finish the job. "Our intent," says Stevens, "was always to set up something they could finish and implement on their own. They're the ones who'll live there and continue learning, long after we've gone."

Indeed, there is much beauty in what RoTo left behind: not only the buildings themselves, but also a revived tribal sawmill, a generation of newly skilled construction workers, and even some former junior high school students whose straw-bale work inspired them to enter building

professions. There is talk at Sinte Gleska of starting a prearchitecture curriculum—to be linked with a professional degree program at the New York Institute of Technology (NYIT)—to train tribal architects.

Buffalo now roam the prairies around the new campus—Lionel Bordeaux brought in a herd as part of a campaign to reclaim the native ecology, its flora and fauna. The regenerative character of the campus is already palpable.

At a recent Sinte Gleska graduation ceremony, Rotondi was pleased to hear Bordeaux say, "This project is helping us rebuild a nation." But, ponders Rotondi, "I realized that architecture and social change don't move at the same pace. This is a slow, slow process. Yes, it's going to happen, but not in the time frame that I had in mind." ■

#### Sources

**Metal building system:** *American Buildings Company*

**Metal roof and wall panels:** *American Buildings Company; ACS*

**Windows:** *Kawaneer (aluminum)*

**Acoustical doors:** *Overly*

**Polycarbonate sheeting:** *American Acrylic Corporation (Lumasite)*

**WWW** For more information on the people and products involved in this project, go to **Projects** at: [www.architecturalrecord.com](http://www.architecturalrecord.com)