



COLORING OUTSIDE THE LINES:

THE FACILITY AS A
LEARNING TOOL

Blending Cultural Sensitivity in Native American Educational Design

Opening your soul and spirit to a learning space

By Jodi Powers and Richard K. Begay Jr.

Traditions, beliefs, and values are essential to defining culture. They are genuine conditions that present a precept to the lifestyle of all Native American communities. Understanding them in an architectural dialogue lends itself to an interactive process with remarkable results in design. It is both a challenge and an opportunity.

Today, many Native American tribes are upgrading their educational facilities and have created learning environments that stimulate and foster cultural teaching. Walls, shade structures and plants become models or tools for teaching. Many of these design elements reflect the traditional settings of the home – the physical make up of where children grow. Emulating this physical setting facilitates an environment that continues to reinforce the culture.

Another aspect to Native American design is constant communication and feedback throughout an entire project. Since many communities want designs that appropriately express their values, a thorough understanding of the culture is essential and pertinent to a strong, working relationship. The resulting dialogue ensures the incorporation of authentic elements of Native culture that can be embraced by community members.

"The Native American market differs from other markets in that there is a strong desire by the Native American user to reflect and respect their culture and tradition in the building design. Native Americans want assurances that we won't impose 'common treatments' to a building's design and transpose them onto Native American soil," notes project architect, Bill Taylor, AIA. "It is important to our Native American clients that their new building design evoke Native American symbology and art with purpose."

This article provides a case study of how Native American values are integrated in an educational design fabric. On the drawing board is a new campus for the Salt River Pima-Maricopa Indian Community, located in Scottsdale, Arizona. The Early Childhood Education Center was completed in 1999. The high school has a 2004 completion date.

Salt River Pima-Maricopa Indian Community

To better understand this contemporary school, it is helpful to know the background of its modern-day users, whose history has been traced back to 300 B.C.

Salt River Pima is an Anglo term. Akimel O'odham is the native name of this tribe, which lived along the Gila and Salt rivers in Arizona in what was the core area of the prehistoric Hohokam culture. It was the Hohokams who built elaborate canals to irrigate their crops in 300 B.C.

The Xalychidom Piipaash (people who lived toward the water) – known as Maricopa – originally lived along the Colorado River. In 1857 the Pima and Maricopa tribes were allies in a victorious battle against the Yumas. Since then, the Pimas and Maricopas have been



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loyal friends, allies and neighbors. The tribes lived fairly close when Anglos settled in the Valley. The federal government drew up boundaries for the reservation by Executive Order in 1879.

While the Pimas are known for their basketry, the Maricopa produced red clay pottery. Colors and designs, representative of their basketry and pottery, are woven into the new school.

The Salt River, a tributary of the Gila River, is located in east-central Arizona. It flows 200 miles in a westerly direction and empties into the Gila River, some 15 miles west-southwest of Phoenix.

Salt River Pima-Maricopa Indian Community - Early Childhood Education Center

Cultural sensitivity heavily influenced the design of the Early Childhood Education Center, the site and all buildings on the



campus. The organizing element of the Center is the significant "man in the maze" symbol, which embodies a cultural spirituality for the Pima-Maricopa Community. The "man in the maze" legend maintains that man is born with a variety of choices to make during life and the path one takes. It also helps children understand the meaning of life.

Specific site boundaries, such as Red Mountain and the Salt River, give attention to the significant landscape surrounding the Pima-Maricopa Indian Community. Red Mountain stands as the backdrop for the school. The ribbed metal roofing over parts of the Center takes on the form and color of Red Mountain, an important landmark for the community. Red Mountain is the source of the red rock the tribe used in making its distinctive pottery for centuries. Undulating steel corrugated roofing is also a direct design correlation to the nearby Salt River.

The design artfully combines the old with the new. Because education takes place indoors and out, courtyards and outdoor learning spaces are integral components of the design. Outdoor learning environments are sheltered by shaded areas, which are located between the development groups, "Vatos," which are shaded gathering structures, are also indigenous to the Salt River Pima-Maricopa Indian Community.

The 80,000-SF, single-story Center is designed to provide individuality to the three development groups:

- One for preschool/child care (10 classrooms),
- One for the community's Headstart program (six classrooms)
- One for kindergarten (six classrooms).

For each area, a particular legend of the community was used as a site icon. For instance:

- The coyote, jackrabbit and tortoise, whose legends introduce youngsters to important morals of the tribe, lend their shapes to the play areas on the ground.
- An outdoor seating area features a long, winding, pre-cast bench shaped like a snake, a character in another tribal legend.

The Center also has its own administrative offices, a nurse's office, a therapy room, a dining/community room, kitchen, maintenance, power plant, and service yard. A freestanding boardroom has a circular shape, echoing the form of a traditional Pima house or "ki." Its banding masonry pattern is drawn from traditional Native American architectural elements (i.e., adobe and saguaro cactus ribs).



Undulating steel corrugated roofing is a direct correlation to the Salt River.

The Salt River Pima-Maricopa Indian Community - Early Childhood Center received a special citation from American School & University magazine for its design. Judges called the Center a "brilliant understanding of art, culture and design in relation to a unique program and client."

Salt River Pima-Maricopa Indian Community - High School

Building materials and colors at the high school amplify the connection of the project to the earth, sky and water, in addition to addressing issues of sustainability.

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The high school design begins with an understanding of its relationship to the sacred Red Mountain lying northeast of the site. The site plan is organized to establish a direct connection to this landmark that is a symbol of the community. The curve of the overall building form embraces this visual relationship; its radial pattern suggests recurring themes in the Salt River Pima-Maricopa's culture's basketry designs.

Red Mountain provides both a vertical gesture and a spiritual sense of place. It signifies the home of the Pima Maricopa people. Native American children are taught to understand the land. They are taught to master their senses to the landscape of trees, rocks and dirt. It is not so much concrete and hardscape, development or cities. For Native Americans, it's about having a strong sense of place – you always know that Red Mountain is in that direction and that contributes to Native Americans' identity.

The Salt River Pima-Maricopa Community associates the landscape feature as orientation to their place of origin – a relationship between themselves, earth and sky.

The site plan was further refined to embody the community's strong sense of family. Classrooms are arranged into three houses or *kis*, each with its own private courtyard. The student body will be organized by grade level into 7-8, 9-10 and 11-12 *kis*. This planning strategy not only allows the school to operate as three smaller schools within a school, but also addresses the school board's concerns regarding student age diversity.

Smaller courtyards are located between these *kis* while a larger, centralized courtyard serves as the campus hub. Landscape features in each courtyard offers a central location where outdoor learning may occur.



Vatos – a shade arbor – create a central node of family.

Adjacent to the *kis* are *vatos*, which is a shade arbor. Combined, they create a central node of family. Buildings encompass a closed space, which are shaded courtyards. These classrooms act as *kis*, which are also represented as little villages.

It's important for Native Americans to understand their place on earth and connect with relatives – grandparents, parents, children and extended family.

A river runs through it

The community wanted a welcoming entry, which provided an opportunity for designers to create a story at the public entry by using native symbology to capture the traditional aspects of the following: the river, trees and calendar sticks. Designers worked with the light to create an anticipation of arrival.



*Salt River Pima-Maricopa Indian Community - High School
DLR Group*

A channel of concrete, representing the Salt River, runs from the parking lot, to the entryway, slips through a two-foot window at ground level and meanders through the interior entryway.

Inside the entry space, the materials change from smooth concrete to exposed aggregate concrete, which signifies the river itself.

The abundance and placement of windows is primarily to connect to the outdoors, and, at the same time, offer practical daylighting. Studies reveal that natural daylighting improves the learning process. Since contact with nature is a key educational element, windows provide vistas to see the trees, the landscape and the sky.

Native symbology cast in concrete

Tilt-up concrete panels were utilized to portray selected cultural symbols, borrowed from basketry and Native American mythology.

Regular eight-inch by eight-inch blocks are offset by horizontal banding made with four-inch high block, which mimics the character from the Early Childhood Center and reflects the horizontal banding of primitive sandwich construction. The Early Childhood Community is dark tannish with red banding, while the high school is just the opposite: it has a dark red dominant field color and lighter banding. Through their arts and crafts, the red represents the Maricopa pottery and the tan relates to the Salt River Pima basketry.

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The language of the exterior shade structure continues inside the Media Center to reinforce the idea of the vatos. External vatos at the Early Childhood Center are made of steel; the vatos in the high school Media Center will be from recycled wood to create a warm volume of space.

Native Resources utilized in design

Once visitors and users pass through the doors and are embraced by this welcoming element, they are exposed to the past through a vertical calendar stick, which contains the Salt River Pima-Maricopa Indian Community history from 1833-1901.

Inside, a window frames Red Mountain, while another frames a saguaro cactus – both holding extreme importance to the Salt River Pima-Maricopa Indian tribes. A saguaro was selected because it serves such a significant role among the O'odham tribes:

- The giant Saguaro produces fruit and flowers on top of its giant arms. Fruit is typically harvested in June and is a traditional food source for the O'odham tribes.
- Saguaro ribs are used to build shade arbors.
- Saguaro ribs and mud were the major building materials for primitive structures. Ribs were used as the horizontal banding placed between the denser mud material.

Introducing native resources into the design reminds users and visitors of what the earth produced and that resources are returned back to the earth. A good example of this concept is rainwater harvesting from rooftops. Water will run off a scupper and drain into a basin, which will have an overflow drain into the planting area to replenish the plants. Adding to the sensory nature of this recycling effort is a chain, which will be suspended from the scupper, allowing water to trickle into the basin.

Planters that feature native desert plants like the mesquite tree will be located at recesses along the entryway. Not only is the mesquite tree a familiar icon in Native American stories, it is also an important resource within the desert landscape. Its bean pods were a significant food source and its cooling canopies are an important shade source.

Raised concrete stoops will support vertical, concrete calendar sticks. Calendar sticks are actually wooden branches carved to mark and record significant events in Pima-Maricopa history. A



Their ribbed metal roofing takes on the form and color of Red Mountain.

series of calendar sticks will serve as reminders of events related to the SRP-MIC tribe. History is recorded symbolically both laterally and vertically. The calendar sticks that will be on the SRP-MIC High School will denote different periods of time:

- A calendar stick in the entrance courtyard has been recorded by Royce Manual and begins at 1979. It is the community's current calendar. Manual's symbols marking the September 11, 2001 tragedies are carvings of two lines, which represent the twin towers and the number 11.
- The second calendar stick is blank and represents the period of SRP-MIC's non-recorded history from 1901-1979.
- An interior calendar stick will be an exact replica of one on display at the nearby Hoo-hoogam Ki Museum. The authentic calendar stick, which records the period of history from 1833 - 1901, is on display at the Smithsonian Institute.

The calendar stick does not record events monthly. Significant events are recorded as they happen. There might be a span of eight months when nothing is recorded. There is a certain order to placing calendar sticks. It is about movement – the sequence of experience.

Green Design Features

In addition to its inspired design, the facility employs many green architecture design features:

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- The cornerstone of the project is a natural daylighting system that incorporates high performance glass, shading and high efficiency light fixtures to maximize student performance and minimize energy costs.
- Lighting density is 30 percent less than standard educational buildings at 1 W/sf, utilizing indirect/direct fixtures to produce a superior learning environment.
- Except for the playing fields, all landscaping is low-water use, native plantings.
- The skin of the building is predominately insulated concrete block, a prevalent, durable, local building material.
- A sample of interior finishes includes 100 percent recycled yarn carpet products, low-VOC (volatile organic compounds) paints and adhesives, and sealed concrete corridors. Carbon dioxide (CO2) sensors are employed in large spaces such as the gym and lecture hall to ensure energy efficient operation of mechanical systems.
- The central plant is designed for future expansion and includes high efficiency chillers, pumps, motors, a plate and frame heat exchanger and energy recovery units in the classroom buildings.

A place of learning

Curriculum will be unique, incorporating pottery, basket weaving, and Native Studies classes. In addition, the Hoo-hoogam Ki Museum will be a resource in history, preservation, artifacts and collections as part of the school's curriculum.

This school is very inspiring and will serve as a place for learning. Not only is it a place for education, it also integrates culture and community into the learning spaces, providing students with a greater level of comfort. Students can expose their soul, and spirit, to what this high school will offer.

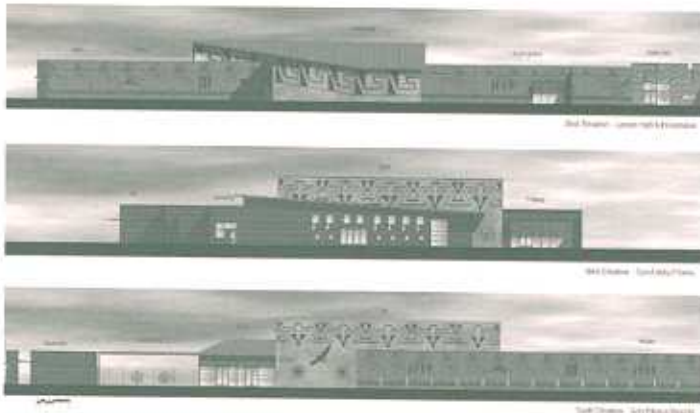
Learning will expand to others beyond the traditional K-12 curriculum. Since there is no community center, the gymnasium, fitness center, weight room and Media Center will be opened to the community; programs like extended learning and adult education will be offered.

The high school is the second phase of development for this site, which will also include a junior high school, elementary school and common/core facilities. This 135,564-SF high school is programmed for a 525-student capacity and is situated on a 30-acre site.

Developing the design with extensive community involvement

"Designing a Native American building is truly a community undertaking," notes Bill Taylor, principal in charge of this project. Educators and community members were active participants. Architects worked closely with members of the community's education board and tribal council, ensuring that the final design meets the community's educational needs in an aesthetically meaningful way.

"The most challenging aspect for the architect is to truly listen," says Taylor. "We don't 'push' our Native American client to make decisions. They want to take the time to explain, ask other tribal members and 'be one' with the process. This way, the solution is to evolve at a pace they're comfortable with. This challenge to truly listen forces us, as architects, to brainstorm design solutions that we might not otherwise ever consider. The final product always ends up better because of this process and the Native American community is more in touch with 'their' building."



Fast Facts:

- 525 students
- 135,564 SF
- 30-acre site
- Construction cost of \$18,183,789 (CM@Risk)
- Anticipated completion date of January 2004
- The high school is the second phase of development for this site, which will also include a junior high school, elementary school and common/core facilities

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