

11/5/2013



More than 6 years in the making, the Campus Master Plan will start construction in early 2014. For the first time the Osage Nation will have new state-of-the-art buildings designed specifically to meet the Nation's needs.

From the very beginning, the Master Plan committee was clear that the plan should blend cultural, architectural, technological and environmental principles into a pattern of structures, roads, and infrastructure that meets the needs of the Osage Nation now and into the future. Close attention was paid to flexibility, ease of use, maintenance, and sustainability.

CHALLENGES

One of the first challenges in the beginning two years was to determine the existing and future needs of the Nation's many departments. Over the years, many staff members have been squeezed into offices too small or poorly designed for current uses. The plan identified what each program needed and future growth in that program. Locating complementary programs next to each other was another key objective of the plan so it would be easier for Osage members or visitors to find what they needed. Historic buildings were protected and new buildings were identified. Planners also evaluated the infrastructure needs for parking and roads, renewable energy and communications. The plan also developed a moving and phasing strategy so that each department would only have to move once. The

11/5/2013

result was a plan that resembled “three-dimensional chess” as one program had to move before the next one could move and so on.

The Master Plan Committee reached out to staff, members of the Nation, and the public in order to assure substantial participation and ownership in the planning process. They conducted over 60 staff and elected official interviews, 30 staff department surveys, dozens of staff meetings, and two public outreach sessions over a two year period.



DESIGN GUIDELINES

Once the Master Plan was adopted the next step was to create design guidelines so that the buildings would reflect the highest standards of aesthetics and longevity, functional design and energy efficiency.

These guidelines help to assure that the Nation’s campus is a well-designed and cohesive collection of buildings that work together over time. Several performance standards were developed to test the design of future buildings.

1. Will the design create a welcome and respectful home for employees, visitors, patients, youth, seniors, and artifacts?
2. Will the buildings and site be sustainable, comfortable, healthy, safe, and simply maintained?

11/5/2013

3. Will the design be easy to navigate and showcase views of the land, water and nature?
4. Does the plan and design of the places, the shelters, buildings and interiors provide the proper setting for Osage culture?
5. Does the design ensure continuous flexibility in the physical layouts and systems?

SUSTAINABILITY

Sustainability for the Osage campus is not only about making environmental choices that lower the impact on the Earth, but also about creating a place where the health of the community is improved, where the social fabric that binds the Nation together is honored, and where the Osage culture can flourish now and throughout time.

This means that the campus as a whole should be more than a collection of buildings. It needs to be a setting that facilitates Osage working together, creating plans together, accomplishing things together and creating memories together. This is accomplished by creating buildings that encourage interaction and visibility and that are attractive and easy to use for decades to come.

A key concept of the sustainability plan is resilience, the ability of the Osage Nation to thrive through the generations, through good times and bad times. A strategy that enhances resilience is to become more self-reliant and less subject to the decisions or lack of decisions of others. The Master Plan addresses energy and water resilience in particular.

Because the Osage Nation lasts forever, the buildings were designed to last many generations. The quality of materials was selected to provide many decades of service with minimal maintenance. The spaces were designed to make them functional and beautiful.

The sustainability strategy embodies the concept that the buildings and campus should be so beautiful and functional that people want to keep them around forever. For that to happen, buildings need to be designed to provide lots of natural light and indoor comfort, low maintenance, and overall beauty of the grounds and setting. And they must be designed to be resilient to all kinds of change – change in seasons, changes in the climate, and changes in use.

CHANGE OF SEASONS

Osage Nation Campus Master Plan Phase I Development Press Release

11/5/2013

The buildings and infrastructure systems were specifically designed for the weather in Pawhuska. Summer's hot humid days can be miserable and winter's sudden ice storms can be deadly. The heating and cooling systems of the buildings were specifically designed to address these conditions. Rain and hail storms happen in a moment when huge downpours can overwhelm systems designed for lesser weather. The roof materials and stormwater conveyance systems were designed to handle these events. Even the soils on the campus were taken into account as the expansive clays found on the site were address in designing the buildings' foundations.

Every element of the design was selected to address the extreme and mundane weather of Oklahoma. Special vertical fins on the building's glass walls were placed in particular spots to provide needed shade for offices with southern and western exposure. Deciduous tress species that are native to Oklahoma were selected to provide summer shade, brilliant fall color, and beautiful straight trunks that allow for low winter light to flood interior spaces.

CHANGE OF CLIMATE

The vast majority of the world's climate scientists are concerned about the greenhouse gases that have been released into the atmosphere by the world's industrial revolution. These gasses such as carbon dioxide and methane allow sunlight in but then act like greenhouse glass by not allowing the warmth to escape back to space. The concentration of carbon dioxide in the atmosphere is higher now than it has been in 5 million years. The result is that some areas will get dryer, some will get wetter, and the extremes of weather will happen more often than in recent past. This can't be good news for Oklahoma, where extremes of weather are already commonplace.

The best way to endure and thrive despite weather extremes – like long-term droughts, or floods, or swarms of tornadoes – is to build solid, build tight, and minimize reliance on fragile systems that can break easily in large storms. The electrical grid supplies electricity very well – until it breaks under extreme conditions. Water supply flows every day – until a drought or equipment failure disrupts the flow. By setting the stage for the Osage campus to be self-reliant, it is another layer of safety for the Nation. The buildings and grounds are designed to tap into onsite energy and water systems now and even more in the future as they become more cost effective.

CHANGES IN USE

11/5/2013

When a building is designed to last for generations, it needs to be flexible enough to allow for changes in use. It may serve one purpose for decades and then transition to some other types of users. The design of the Welcome Center and Police and Treasury buildings do just that. Many of the walls inside the buildings can be easily reconfigured as needed to add or subtract office space as needs change over time.

ENERGY EFFICIENCY

The exterior walls of the Welcome Center and Police and Treasury buildings are designed for high energy efficiency. They use materials that last for generations and are especially designed to keep indoor temperatures comfortable.

Outdoor lighting was also selected for high efficiency and low maintenance. The LED bulbs last for thousands of hours without burning out. An added benefit is that the colors are more accurate with LED light which makes it easier for people to see better at night. Instead of road and pedestrian pathway lights that cast a yellow or green gleam, the clear white LED lights use less energy, last a lot longer and create a welcoming and safe environment.

The design of the buildings uses natural resources that nature provides for free whenever possible. For example, sunshine during the day provides light and warmth even in winter. So the buildings are designed to allow natural daylight to fill interior spaces without making the rooms too hot or too cold. Work spaces with natural light are more productive and use less energy, studies show.

Even when the lights do go on, special occupancy sensors are in each room. If the sensor notices that no one is in the room for some pre-set length of time – say 15 minutes – the sensor will automatically turn off the lights. The lights automatically come on if motion is detected and a manual override switch can also be activated for rooms that need to leave the lights on – even when they are empty.

These kinds of sensors are very common in the newest buildings and the costs for the sensors are more than paid for by the energy savings they generate.

Another natural resource that arrives on the Osage campus is rain. The rain can be captured and used for non-drinking water purposes like toilet flushing. Why buy drinking water from the city to flush toilets when most of the time there is plenty of rainwater available? While wash water and drinking water will continue to be provided from potable water supplies, the Welcome Center and Police and

Osage Nation Campus Master Plan Phase I Development Press Release

11/5/2013

Treasury buildings will have a rainwater harvesting system designed to flush the toilets. The fresh rain from the roofs is collected in an underground cistern that stores enough water for 20 days of use. That water is then filtered and cleaned before it is sent to the toilets. Any time there is more than 20 days without rain, the system just adds water from the city to make sure that the toilets are always operational.



Typical Oklahoma thundershowers will fill up the 10,000 gallon cistern quickly. Any water that exceeds storage capacity then flows by gravity to a stormwater system outside the buildings. There, a stormwater system absorbs the rain and manages the flows so that the clean water ultimately flows into and refreshes the ponds on campus.

Another resource that nature delivers for free to the Osage campus is the temperature of the earth. Dig down about ten feet and the temperature is usually about 55 degrees – winter and summer. On hot summer days, getting access to that temperature is a blessing of coolness. On below-zero cold winter days, 55 degrees sounds downright warm. Because the temperature of the earth stays very constant, the Phase 1 buildings will use that constant temperature to heat and cool the Welcome Center and Police and Treasury building. A series of geo-exchange wells will be drilled on the campus and each well will have a pipe loop down the well and back up to the surface. As the water flows through that loop, it takes on the temperature of the earth and arrives at the surface where it can be pumped through a heat

Osage Nation Campus Master Plan Phase I Development Press Release

11/5/2013

exchanger and water-to-water heat pump. Because the temperature stays so steady, the heat pump is very efficient in boosting the energy up for heating or dropping it down for cooling in the buildings.

During the summer in Oklahoma, humidity can make the days and evening sweltering. How will the Welcome Center and Treasury Building keep the humidity down? A multi-step system is included to address humidity. First the fresh air supply system for the building is pre-cooled by the already chilled exhaust air on its way out. This process lowers the humidity by reducing moisture content of the incoming air. The air then passes through another device called a chiller – that removes even more of the humidity. The result is that the incoming fresh air is a very close match to the ideal temperature already set inside the building. If needed, the air is then chilled even more by “chilled beams” that keep temperatures comfortable throughout the building.

MAKE IT OSAGE

The strategies used for Phase 1 of the Master Plan are a blend of ancient common sense and proven new technologies. They don't define the Osage Nation – but they do set the stage for the Osage Nation to continue the practices, knowledge, and activities for this and many generations into the future. And that is what makes it Osage.