

Milpitas City Hall Designed to be “Lean and Green”

Long before California’s energy crisis in 2001, Milpitas’ new City Hall was specially designed to be “green” – referring to much more than a decorating color scheme, the new City Hall is equipped for energy efficiency and environmental sensitivity.

“The new City Hall rises above other ‘cookie cutter’ buildings in its unique ability to respond to the surrounding environment and take advantage of the area’s mild climate and natural lighting to conserve energy,” says City Manager Tom Wilson.

At the center of the building’s environmentally-conscious design is the 69-foot rotunda. More than an eye-catching design feature, the rotunda is a cornerstone of the building’s natural ventilation system.

“The idea for naturally ventilating the building came in early,” says City Hall Architect Charles Dillworth of Studios Architecture in San Francisco. “It came along with the idea for the rotunda, which is equipped with louvers at the top of the building. The rotunda acts like a heat chimney drawing natural air in from the numerous operable windows in the building and then up and outside by the natural process of convection.”

But natural ventilation is one of five key design features that make the Milpitas City Hall an environmentally friendly building. Other features include the building’s orientation, under floor air conditioning, super insulation, and lighting.

“The result of these efforts is that the building passed the extremely stringent Title 24 state code requirements by more than 10 percent,” Dillworth says. “This building is a great showcase for a lot of new and wonderful ‘green’ architectural ideas. That’s why I’m so pleased with it.”

“Air” Apparent

During the hottest days of the past summer, the building’s natural ventilation was put to the test – and passed. “I noticed during our heat wave in August that we didn’t have the air conditioning on and yet I felt cool air going up through the rotunda,” says Councilmember Patricia Dixon. “That’s the great thing about our new building – it’s very efficient.”

But should the need for air conditioning arise, the building is wired with a high-tech climate control system that automatically adjusts the air conditioning and louver panels – slatted, moveable openings along the windows – to keep building temperatures comfortable.

“All the louvered panels are motor operated and tied into the central heating, ventilation and air conditioning computer,” says Mark Rogge, Assistant Project Manager for the Milpitas City Hall construction project. “So we can take advantage of the many mild climate days in Milpitas by opening the building and allowing natural ventilation to take its course.”

Keeping Its Cool

To keep the cool air inside from escaping, the building’s roofs and walls are highly insulated. The building’s windows are double paned and protected with reflective panels on the outside to cut down on the sun’s glare.

In addition, the building is encased in high-performance glass to support energy efficiency. “The glass around City Hall, which looks like typical glass, has a tint and carries a transparent coating that reflects sun rays like the mirrored glass used on many commercial buildings in the past 20 years,” Dillworth says. “But, in my opinion, this glass looks much nicer.”

Location, Location, Location

When Dillworth established the site for the building, sunlight patterns played a considerable role. The California sun hits buildings hardest from the west in the mid- to late afternoon, meaning the need for air conditioning increases between 4 p.m. and 7 p.m. So the less exposure a building has with the east/west sun, the cooler it stays, Dillworth says.

With that in mind, he designed City Hall with the longest sides of the building facing north to south. “In the Bay Area climate where little heating is required, but air conditioning costs can be very high, buildings that optimize protected southern and northern exposures are much more energy efficient,” Dillworth says.

Air From Low Places

When designing the City’s new second floor Council Chambers, Dillworth knew efficient air control would be important, so he included an under floor air conditioning system in which cool air is delivered from holes located under each chair below the carpeting. This system delivers air through soundproofed floors, eliminating the drone of an air conditioning vent. It also adjusts the climate based on the temperature of people in the room.

“It’s a strategy you see mostly in movie theaters and courtrooms,” Dillworth says. “The result is more comfortable occupants and a more efficient use of the air because it is delivered directly to each occupant.”

Lights Turned Low

To cut down on lighting costs, lights in open office floors use reflective, low wattage, fluorescent lights, which shine toward the ceiling, cutting down on glare. Each desk or office space is then equipped with individual task lights. In addition, all lights in restrooms and offices are set on automatic timers, which turn on when people enter the room and turn off when they leave.

‘Besides offering great energy cost savings, using task lighting offers a more soothing office environment,’ Dillworth says. ‘It’s also much easier on the eyes.’

City officials say the result of all these “green” features will be lower energy costs and a more pleasant place to come for employees and the public. ‘It was quite a challenge to come up with the ‘green features’ of the building,” Councilmember Dixon says. ‘That’s why it’s been quite remarkable to me what we’ve been able to achieve.’

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