Technicians rig fireworks on top of the Space Needle in preparation for the spectacular New Year's Eve show.

Sky Lights

Fireworks shows go high tech

BY PAUL CLARKE

The renowned New Year's Eve show at Seattle's Space Needle (left) is first created virtually (above) by Alberto Novarro, using his software system, Visual Show Director.

COURTESY: ALBERTO NOVARRO / INFINITY VISIONS INC.

In the basement office of his Bellevue, Washington home, Alberto Novarro is turning back time. On his computer screen is a three-dimensional representation of the Louvre in Paris, the way it looked in 1739 when a fireworks show was fired from there to celebrate the marriage of Louise Elizabeth to Prince Philip of Spain. "It was one of those pieces the kings used to organize," Novarro says. "They were the fantastic multimedia shows of the time, and I'm re-creating that virtually."

Novarro drags the computer mouse, and the entire structure rotates; with a few clicks, he zooms in on the roof, where digital markers indicate where he would place the mortars for pyrotechnic shells, were he to reproduce the show. This demonstration is possible thanks to Visual Show Director, a software program Novarro created that allows pyrotechnic designers to create shows virtually, using the structures and landscapes they'll use in real life.

Novarro's system is one of the most widely used design tools among show producers. He cites prestigious displays such as the Eiffel Tower New Year's show, the New Year's Eve fireworks in Sydney, and Fourth of July shows in New York and San Francisco as examples where Visual Show Director is used. As a show designer himself, Novarro uses it to create the celebrated New Year's Eve fireworks on Seattle's Space Needle.

Using this software, Novarro says, "You can design as if you're actually firing the show." Designers can designate shell placement, trajectory and altitude, along with the placement and firing of roman candles, mines, comets and other pyrotechnic devices. The firing of each device can then be choreographed with a musical soundtrack.

With tools such as this, show producers can create tighter, more impressive performances. Tucker says that in the past, a typical show may have had 200 firing cues; using a computer, he recently completed a show that has 3,200 cues, with each cue igniting up to 10 pyrotechnic devices. And the change isn't evident only in the quantity of fireworks used; designers can now repeatedly rehearse and refine displays to create more complex performances. "You can create new things that would be impossible to conceive without this tool," Novarro says.