

The Greening of *Opera Erotique*: creating sustainable 'design on demand'  
A York University Research Project

In June of this year, our small production company, Out of the Box Productions, was presented with a unique opportunity. In 2004, we had originally produced our show *Opera Erotique* at the Events Centre, a nightclub in Victoria, lit entirely with conventional instruments. When we talked about remounting the show at the Tranzac Club in Toronto, we decided to conduct a comparative study by lighting the entire production with LED instruments . . . not just washes, but acting areas as well.

Through the generosity of J.F. Canuel, V.P. of A.C. Lighting, we were offered a complete LED lighting rig for the show – whatever I requested was made available to us – including the new Color Block 2 (fig 1). These fixtures, with their RGBA optics, 530 lumens of output and theatrical grade dimming made the design challenge seem, at least on paper, possible.



Figure 1  
Color Block 2



Figure 2: Discarded truss  
and tv antennae

Before we talk lighting, it should be noted that the whole project was 'green' focused. The creative team included Professor James McKernan (fig 2), a dedicated advocate of sustainable theatre practice. His ability to create an industrial style set design from used/recycled materials and soft goods inspired us all, saved on the budget, and created a fully functional 'hanging rig' for my lighting. Better still, at the end of the day, there was literally no waste. Everything was returned to bins, or to where he had borrowed it.

Director Gwen Dobie was fully supportive of the lighting challenge, with one caveat; before load-in, we had to set up a small portion of the rig in a lighting lab, then test intensity and colours on the cast. With the assistance of Lighting Design student Marieve Aube, and using the versatile Mac based Jands Vista Software with USB dongle, we were up and running with no more than the usual 'what is wrong with this equipment . . . oh, it's me not the equipment' moments.

However, upon striking the first lamp, we immediately noticed a significant drawback. The Color Block 2, with its built-in diffusion (there to blend colors and reduce multiple shadows), has a discouraging amount of flare, especially when using the optional 'beam kits'. In a show with audience literally side-by-side with the performers and projections, we simply couldn't live with this amount of flare. The solution for our production was simple enough. We purchase a roll of black wrap, and wrapped every CB2, effectively creating a 2.5" snoot. This reduced the amount of flare to a workable level, and we were able to move ahead.

Simply put, the intensity was acceptable and the color was stunning. To have the full range of saturated colors (that never burn out), plus the subtle acting area warms and cools, all selectable by the major gel manufacturer's designation on the Jands Vista, offered tremendous flexibility, a huge step towards 'design-on-demand'.

The fade curves were excellent, with no popping or drop-offs. And the ability to truly have a zero count (no tungsten afterglow), made for some exciting special-effect sequences.

So what about the 'green' power advantages? Some quick calculations show it took 6 of the 5-Way PSU to power the 30 Color Blocks (480w/unit x 6 = 2.88kw) plus 4 Color Punch at 120w (480w) for a total rig consumption of 3.36kw.

The conventional rig used in 2004 consisted of: 2 Selecon Pacific 90, 10 Source Four Juniors, 8 Fresnels for a total consumption of 11.5kw.

Less than 1/3 the power consumption (29%) . . . a serious off-the-top savings in energy. And consider the following additional advantages: a 25,000 hour lamp life (savings in maintenance costs, and no TH lamps in the landfill), no gels to replace with the obvious savings on the environment, and a huge reduction in the amount of heat pumped in to the performance space (translated to a reduction in HVAC). The only comment regarding lighting from the performers came from the dancer who stated how wonderful it was to not be 'frying' under the stage lights.



Figure 3: the whole lighting rig fits in the trunk of a car



L-R: Adria McCulloch,  
Lina Jimenez Nykwist, &  
Alexander Hajek

Having subsequently toured Opera Erotique in 2004, I was struck by the added advantage of a fixture not much bigger than a cigar box (weighing 2.8 lbs), offering ease of transport, lighter hanging rigs, and less wear-and-tear on crew (fig 3). For those of you who work in found performance spaces, imagine, 18 Color Block 2's into a single u-ground outlet!

So you must be wondering about the disadvantages. Well, in addition to the flare, the biggest disadvantage is, of course, the lack of a single light source in the instrument, and all that does to the photometrics. No, these are not ERS, you cannot shutter to a fine edge, nor add texture to the beam. However, if you think about lighting your entire show with fresnels, then you can begin to accept LED lighting for acting areas, and will open yourself up to the many significant advantages they offer.

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<http://www.outoftheboxproductions.ca>  
<http://www.aclighting.com/>