

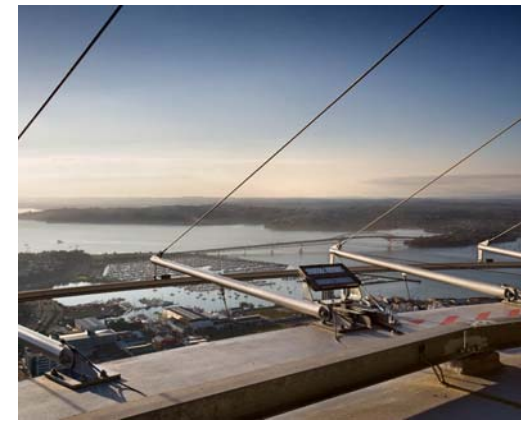
The global need for energy efficient lighting, along with local initiatives such as NZGB, and the NZ Efficient Lighting Strategy by the EECA is causing people to search for more efficient technology to replace conventional architectural light sources. Awareness campaigns such as Earth Hour have also helped to highlight to all urban citizens the potential cumulative impact of energy conservation. But we can ensure that we are energy conscious without plunging our skylines into darkness if we are more aware and considered about the way that we light our cities.

Well thought-out architectural lighting ensures security and visibility in urban environments. The way that we light our cities and our buildings has a huge impact on both the way that we perceive them and the way we feel about our greater environment. New technology offers us the tools to create breathtaking and vivid installations that are both sustainable and reduce light pollution.

Modus work alongside the world leaders in lamp and luminaire manufacture and search out the best available technologies for the lighting requirements of each project we undertake.

This was why Jonathan Woodbridge Buys, Sky City's Energy and Environmental Co-Coordinator, sought out the expertise of the team at Modus Architectural Lighting when he was looking to re-light the Auckland Sky Tower. Energy Savings were critical - but so was the technology, maintenance requirements and overall aesthetic effect of the lighting on the tower.

The new installation by Modus Architectural Lighting has proven itself to be a world leading lighting solution. The final lighting design contains an LED Lighting system for the top 1/3 of the tower, with high performance Metal Halide luminaires lighting the bottom 2/3. Utilising the best available technology for the project we have achieved a spectacular result that offers increased efficiencies with energy use reduced by 66% overall, and maintenance and spill light dramatically reduced whilst ensuring that the Sky Tower increases it's presence in the Auckland City night skyline.









## Color Reach by Color Kinetics

Colour Options:	Black	Configuration:	RGB, Intelligent White & Essential White
Lamp Type:	LED	Power Consumption:	290W max at full output steady state
Lumens:	5200+	Lumen Maintenance:	68,000hours L50@ 25°

Color Reach Powercore by Color Kinetics is the first LED fixture that is powerful enough to brilliantly illuminate large-scale façade installations. This luminaire offers output of over 5000 lumens and light projection of over 152m the Color Reach is truly unique. The design of the luminaire in two arrays supports different diffuser combinations for precise light control, and each half of the fixture is individually addressable and controllable.



## Color Blast Powercore by Color Kinetics

Colour Options:	White or Black	Configuration:	RGB, Intelligent White & Essential White
Lamp Type:	LED	Power Consumption:	50W max at full output steady state
Lumens:	466+	Lumen Maintenance:	50,000hours L50@ 50°

The Color Blast Powercore delivers rich saturated color and is suitable for both interior and exterior applications. This luminaire is available in a selection of 3 beam patterns offering solutions for wall washing, grazing, floodlighting and spotlighting. The Color Blast is a versatile luminaire that will allow you to create unique facades and interiors whilst being simple to both install and use.



## iPlayer by Color Kinetics

Input Voltage:	100-240VAC, auto switching, 50/60Hz
Supported LED nodes or fixtures:	2 unique universes of 170 light addresses each
External Auxiliary Interface:	Two DMX512 RJ45 Ports, Two RS-232 9pin serial ports
Computer Interface:	USB 2.0

The iPlayer controller is a show storage and playback device used with the Colorplay 3 light show authoring software. Use the iPlayer as either a stand-alone or computer driven controller to control 2 DMX universes (up to 340 light addresses). The package of the iPlayer and Colorplay software allows you to create and manage customized light shows that can easily be updated and edited as and when required. The unit is simple to use, with basic onboard factory preset shows, built in light addressing features.

The Color Kinetics luminaires shown here on the Sky Tower were mounted on custom designed and manufactured brackets.

In the first month of the new installation these Color Kinetics fittings were subject to over 110 lighting strikes to the tower structure itself during a single winter storm - and every single one performed flawlessly.

Color Kinetics LED systems have been thoroughly researched, well engineered and precisely manufactured and tested for performance - which means that all products have been tested by Color Kinetics and 3<sup>rd</sup> parties. All components have been proven "field stable" which meant that we could have total confidence in placing the luminaires in such an exposed and extreme environment.

In the past it would take a team of riggers several days to change the coloured gels over the large 1000W floodlights around the tower every time the lighting scheme changed. Now the colour of the lighting, along with the way the light moves, can be programmed from a laptop and the light show instantly transferred to the exterior lighting of the tower by the advance LED lighting system by Color Kinetics.

There were two different RGB LED luminaires by CK used to light the top 1/3 of the tower, and the lightshows authored by Sky City using the Colour Play software are stored and played back through the iPlayer controller.



Lighting the Auckland Sky Tower offered some up some challenges in both design and installation that were completely unique. The project required some site visits that were quite unlike any others.

The riggers from Technical Rigging Services and Sky City staff were on hand with the harnesses and safety knowledge so important when working at heights of over 60 floors above ground. With their assistance, staff from Modus Auckland were able to get out onto the exterior of the Sky Tower itself for site testing, and also the installation and commissioning of the LED lighting system. In the final commissioning phase all of the luminaires were individually aimed by the TRS and Modus team on a bitterly cold night in June. We had additional assistance from team members in vantage points across the city and Benn Chi, the Regional Senior Field Engineer from Color Kinetics Asia Pacific was onsite with us also.

There was still some fine tuning to do after the initial commissioning with spreader lenses subsequently fitted to the lower levels following further site trials, and additional fittings still to be installed at a later date.



The TRS team take a rest stop on their way up the mast



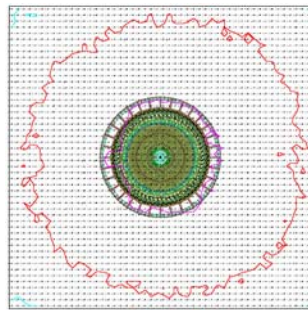
Jonathan (Sky City) and Chris Byrne (Modus) climbing up the top section of the Sky Tower mast.



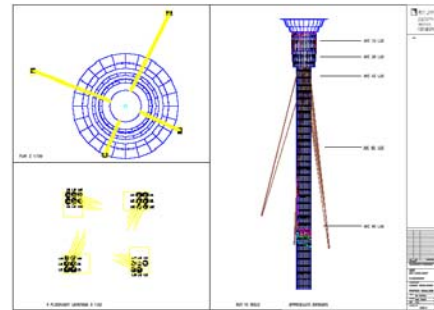
Looking down from the very top!



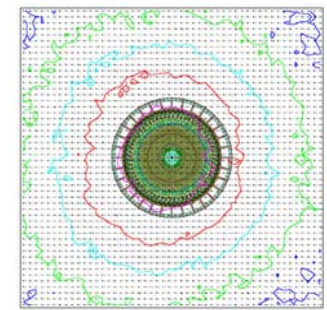
Chris Huff (Modus) and Tony (TRS) installing one of the Color Kinetics Color Reach Luminaires



Spill light and sky glow from previous installation



A pictorial of the new lighting installation.



Reduced spill light and sky glow with the new installation.

The base of the Sky Tower is now illuminated by precision FLC floodlights by We-ef.

The innovations optical system We-ef have developed utilizes precision formed reflector made from anodized high purity aluminum. Offering a high photometric performance with superior beam efficiency and control these floodlights were able to increase the light levels on the tower itself by approximately 30% whilst significantly reducing the amount of light pollution into the night sky. The AGI plots above show the dramatic reduction of spill light between the old installation and the new we-ef installation.

This improved efficiency of the luminaire and lamp technology meant that the installation could use half as many fittings as previously installed, offering Sky City a 50% reduction in the amount of power used to illuminate the majority of the tower structure.



### FLC260 Medium Projector by We-ef

Colour Options: White, Silver, Black  
Lamp Type: Metal Halide  
Wattage: 250-400W  
Materials: Marine-grade die cast aluminum alloy. Safety glass lens & rubber gaskets with a precise anodised aluminium reflector.



### FLC280 Very Narrow Projector by We-ef

Colour Options: White, Silver, Black  
Lamp Type: Metal Halide  
Wattage: 1000-2000W  
Materials: Marine-grade die cast aluminium alloy. Safety glass lens & rubber gaskets with a precise anodised aluminium reflector.