



Longer lasting lighting lowers lifetime costs

With the success of the country depending on farming and much of that success depending on the dairy industry, the technology investments Fonterra makes provide benefits well beyond the dairy giant's own operations and will continue to do so for decades to come.

Central to Fonterra's approach is longevity and measuring how long new plant and equipment will last and how much it will cost to buy, run and maintain over its service life.

Every cent that can be shaved off the cost of producing a kilo of butterfat or 25kg bag of milk powder helps maintain Fonterra's competitive position and it is not just in process improvement these savings are sought but in the operation of the buildings that house the production facilities.

All Kiwi manufacturers face a similar challenge in striving to reduce costs, so when Fonterra builds a new dairy factory and focuses its considerable engineering capability on the design of the electrical installation, there is more than passing interest in the choices it makes.

To light the two vast storage sheds at its new Darfield milk powder plant in Can-



Infinity Lighting's 400 W long-lasting low-glare Everlast induction fluorescent fittings provide a high level of light uniformity in Dry Store 2 at Fonterra's new Darfield milk powder plant

terbury, Fonterra chose two different light sources: LED for Dry Store 1 and then induction fluorescent for Dry Store 2.

Fonterra's head of electrical engineering for major projects, Glenn Sullivan, says the two stores were treated as two separate projects and luminaire selection was based on products approved and put forward for each.

Lighting is the major consumer of power in the storage areas so much of the focus on reducing costs was on selecting fittings that would deliver a high lumen output with a high luminous efficacy.

However, the energy performance is just part of the cost/benefit calculation, says Sullivan.

"The longevity of the lamps has a mas-

sive bearing on the true efficiency and lifetime cost of a lighting solution in many of the places we light. The frequency of having to replace lamps, the time it takes, the ceiling heights – some of which require scaffolding – and the proximity to food processes all add hugely to total replacement costs which often exceed \$1000 a lamp."

So when the tender for Dry Store 2 attracted a bid using induction fluorescent luminaires with a rated lamp life of 100,000 hours, the impact of this long-life capability caused these re-lamping and maintenance costs to tumble and the lifetime cost of the lighting installation to reduce in favour of this solution.

Supplied by Tauranga-based Infinity Lighting, the US-manufactured 'Everlast' in-



Phil Fuller



Rated for 100,000 hours, the circular Everlast induction fluoro high bays will substantially reduce maintenance costs by pushing out the first relamping to 2025

duction fluorescent high bays now provide the primary lighting for this latest Fonterra development.

There are 234 Everlast circular 400 W fluorescent high bays now supplementing the natural light in the cavernous building and 38 rectangular IP-rated induction fittings lighting the ELA environmental loading area.

Infinity director and industrial lighting specialist, Phil Fuller, says the company recommended induction fluorescent over its LED range in this instance because the cluster of performance values offer Fonterra a more sustainable lighting solution.

"Induction fluorescent is a mature technology and ensures its proven long life by the very way the lamps receive power to fluoresce into light. Because the electricity is induced into the fluoro tube through the glass there are no internal tungsten filaments

to blacken over time. Light levels depreciate less and lamps last far longer than standard fluorescents."

Fuller says it's not just the longevity that delivers users a greater advantage.

"A standard metal halide high bay typically loses 40 to 50 percent of its light output by 20,000 hours whereas Everlast induction fittings will run for Fonterra for the 100,000 hours or 12.3 years they estimate before output drops by only 30 percent. And because the Everlasts are now running under a lighting control system at Darfield, this depreciation threshold is likely to be pushed out further."

The Everlast luminaires supplied are low-glare, shatter-proof, dimmable and controllable units offering the highest light output in the Everlast range. Fuller says they went with highest output in order to reduce the number of fittings and increase the energy savings when dimmed.

"The real efficiency comes from the controls and light harvesting from the skylights, but the longevity and vastly reduced maintenance costs come from the fittings."

He says with induction lamps lasting five times longer than metal halide, if a lamp change costs over \$1000, the Everlast fitting is free by the time a second HID lamp change would roll around – paid for by an unused maintenance budget.

Fuller says any company prepared to look at the real cost of lighting as Fonterra has done should consider the induction option even where a sophisticated control system is installed.

"We have Dialight industrial LEDs also as an option. But despite the fact that they can be dimmed to near zero to produce op-



Darfield distribution centre manager Hayden McMillan

timum savings, Everlast fittings can still be dimmed perfectly well to 30 percent of total light output and generate the lion's share of these savings.

While the full extent of the total savings achieved by Fonterra at Darfield is yet to be measured, Fuller says the lighting designed by Infinity's industrial designer, Vicki Kivell, has turned out really well with excellent uniformity despite the low number of fittings used.

The Darfield Distribution Centre manager, Hayden McMillan, confirms the evenness of light distribution and says the fluorescent light appears very natural.

"The lighting is very good to work under. We stack product to quite a height and the forklift drivers report great visibility on the product and no difficulty with glare when they look up."

For typical upgrades from HID to induction fluorescent, Infinity Lighting recommends swapping out a 400 W metal halide with a 300 W Everlast induction fitting which offers more usable light. Phil Fuller says Everlast is continuing to make improvements to the efficiency of induction luminaires with new control gear development that will further reduce lamp depreciation. ■



Everlast produce a range of induction fluoro options including low-glare, shatter-proof, dimmable, controllable and IP-rated versions

For further information:

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