

WINERY DESIGN REVISITED

Cape Wine Masters Seminar

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EXECUTIVE SUMMARY

I started researching the design of wineries back in 1997, initially as the preliminary to an architectural commission, but this culminated in my CWM dissertation in 2000. Recently, I read the dissertation again, and it struck me that a lot had changed in the last decade. It's almost time to revise and update that work.

At the time, all emphasis was on gravity feed, without much elaboration on the benefits it offered. There were ancillary issues, like modular planning for barrels, pallets and tanks, as well as some quite extreme approaches to temperature control, but gravity feed was the mantra. The parameters have definitely shifted.

I was preoccupied at the time with fruit sorting in the grape receiving stage, but the consulting engineers we had commissioned made it quite clear that this was not current industry thinking, and nobody worth considering was doing it. The consultants were duly decommissioned and we looked elsewhere for advice. I feel vindicated, having designed three wineries that place maximum emphasis on sorting, and I'd like, on the basis of my ongoing involvement in solving winemaking challenges, to suggest where we should be, and in some cases are, looking for future directions.

The buzz concept now is carbon footprint: sustainability. The planet is being poisoned, and we, as responsible wine producers and consumers, should be doing something about it. This can be interpreted as anything from ultimate biodynamic practice to simple respect for the environment.

The current lack of current has brought home, quite rudely, how urgently these issues should be addressed. Ten years ago, complete thermal control was considered to be an essential and high performance, product-friendly pumps were the last word in technology, but modern thinking has new priorities.

Today's ultimate winery should harness all possible free energy, maximise space and product insulation, consider source materials (oak, steel, etc.) and their environmental impact, and be able to deal with its own effluent. It should also offer the winemaker all the control and protection earlier wineries could. This may seem like a tall order, but it's achievable. (more [Introduce link](#)).

We've begun to understand some of the essentials of sound wine-making management a little better:

1. **Refrigeration:** We can't really do without cooling, given the South African climate around harvest time. The only way to balance the carbon audit is to reduce the load wherever possible, and to give back to the environment for the credits lost during vinification.

2. **Location:** There is no value in establishing a food processing factory in rural surroundings, apart from the tourism spin-off. If it is located in a convenient industrial area, it can use conventional power and effluent treatment, and carbon credits can accrue from the farm's green-lung effect. In the past, there was a preoccupation with growing, producing and bottling on site, but most wine producers buy grapes and finished wine from other sources now, so transporting them has become a way of life.
3. **Gravity feed** is meaningless once the product is in liquid form; it pertains only to whole fruit. Even then, the argument is tenuous, because good quality pumps do very little, if any, damage to fruit solids. After some convoluted solutions, it dawned on winery designers that gravity could be contrived mechanically, using fork-lifts and gantries, and it wasn't necessary to build on precipitous slopes or in converted mineshafts.
4. **Sorting of fruit** is so fundamental to good wine that it's amazing it wasn't recognised earlier. Each foreign object, each green or rotten berry, each insect that's removed from the mix gives the wine a better chance. Some quite impressive machinery has been devised to handle the task. There are several opportunities to sort grapes, starting in the vineyard, through whole-bunch tables to single-berry selection on vibrating conveyors, and each removes more potential spoilage components.

This field isn't fully resolved, though. Each stage of sorting has thrown up new challenges; poorly-trained and paid pickers who set a lower standard, handling systems that don't expose all the bunches for inspection, vibrating tables that induce migraine after ten minutes of blurred vision, and the cost of unmotivated staff. Machines have been designed to emulate human discernment, but I'm not fully convinced that they do.

5. **Wood** – my personal crusade. I have nothing against it, but I wish it wasn't used as a seasoning ingredient. I predict that the use of oak barrels will decline radically in the near future, partly because they will be perceived as alien flavourants, and partly because they're too expensive. Furthermore, our ecological souls are beginning to question the French claims that their ancient oak forests are really as sustainable as they claim.

Barrel substitutes will, I'm afraid, continue to gain ground as a poor-man's fine-wine wannabe, but that is not relevant to the pursuit of quality (Winery design concentrates on the top-end products; mediocrity can be produced anywhere). Alternatives are tested over and over, and are mostly found wanting, but they can add some dimensions to the real low-fliers.

Hopefully, in the near future, all winemakers will stop flavouring white wine with oak. The value of barrel fermentation and maturation lies in the controlled oxidation it offers, together with the extraction of oak elements in a long-term sequence that integrates and precipitates them harmoniously. A teaspoonful of oak juice provides a simplistic and transient alternative.

6. **Public place:** The great gods of architecture have embraced wineries as public buildings, and luminaries like Santiago Calatrava and Frank Gehry feel they should have one on their portfolios. This has raised the humble production facility to a status approaching that of cathedrals and palaces. Breathtaking modern sculptures with budgets running into billions have taken the place of humble bodegas and cuveries.

This is both encouraging and depressing. It's good to see wine elevated to an object of public admiration, and for wineries to be catalysts of social activity. The natural affinity with fine food is celebrated in a burgeoning restaurant community in the world's winelands. Public-place wineries

take advantage of the aesthetic beauty of the vineyards, and feed the jaundiced urban spirit with a diet of rural rusticity.

However, they have the negative effect of deifying the industry, and lending it nobility that flies in the face of current market penetration policies. The wine industry needs to embrace rather than ostracise the public. Besides, the huge costs of some of these temples send out some unfortunate messages about profit margins.

7. **Scale of operation:** Bigger was mostly seen as better – a mark of success. In the last decade, though, *Garagiste* has gained cachet. There's nothing quite as fashionable as a tiny artisanal cellar, embracing biodynamic principals, and producing small quantities of fine wine. These have been common in Burgundy for ages, and are well-entrenched in California and Australia, but they're new here. The industry is taking a while to recognise their importance, like most things around these parts. The nice thing about designing tiny wineries is that they don't have to use expensive technology to work; a good dose of common sense, ergonomics and basic production planning can produce a low-cost, workable winery without frills or aspirations.

This was never intended to be a technical paper, and, so far, it has avoided being one. It's difficult to describe some of the issues without getting into more technical detail, and I can feel the urge rising in me to rant on, so it's better I stop now. Perhaps, once I'm on top of all my other crises, I'll get back to that revised edition of "Winery Design Principles in the Cape Wine Industry".

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