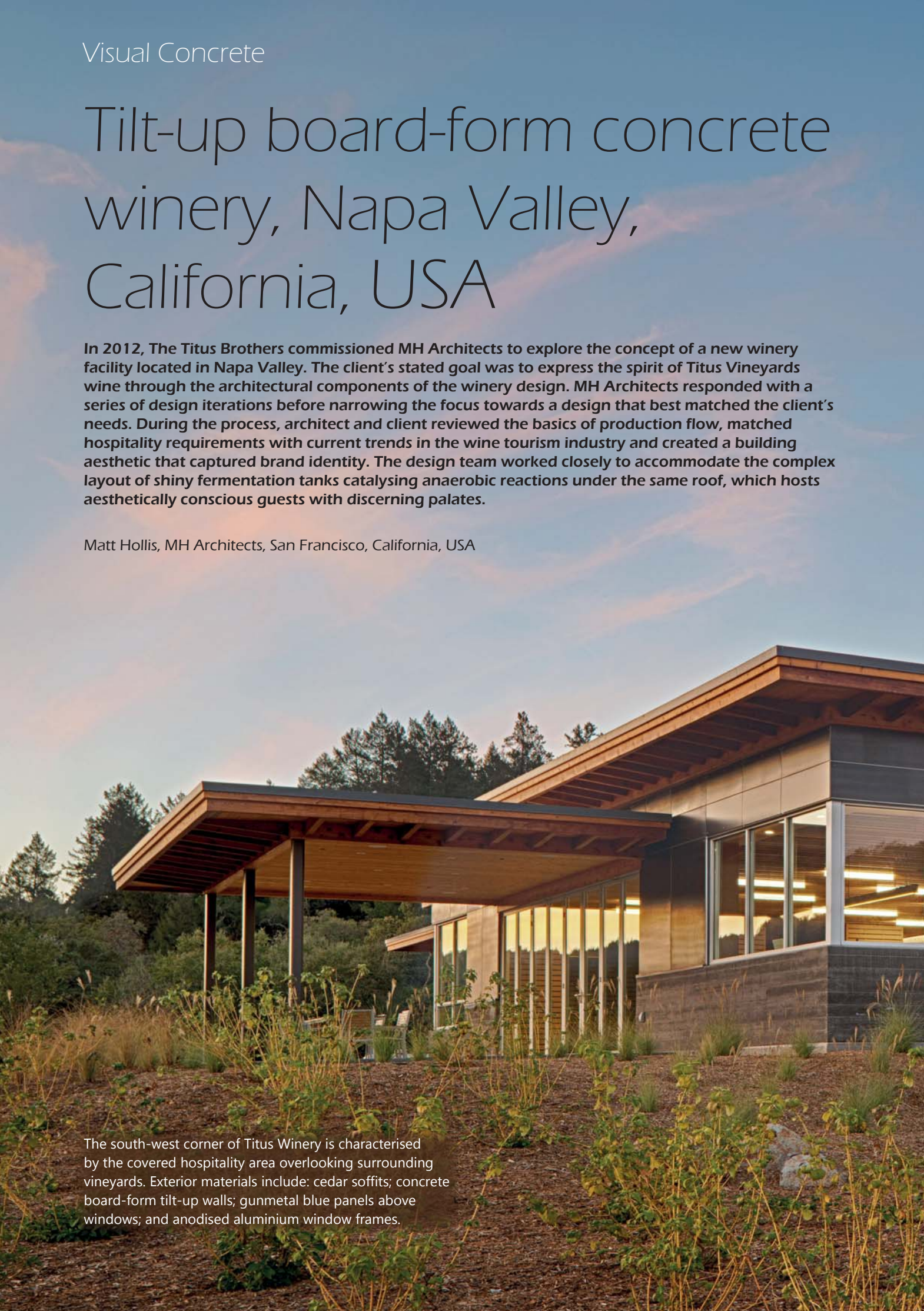


Visual Concrete

Tilt-up board-form concrete winery, Napa Valley, California, USA

In 2012, The Titus Brothers commissioned MH Architects to explore the concept of a new winery facility located in Napa Valley. The client's stated goal was to express the spirit of Titus Vineyards wine through the architectural components of the winery design. MH Architects responded with a series of design iterations before narrowing the focus towards a design that best matched the client's needs. During the process, architect and client reviewed the basics of production flow, matched hospitality requirements with current trends in the wine tourism industry and created a building aesthetic that captured brand identity. The design team worked closely to accommodate the complex layout of shiny fermentation tanks catalysing anaerobic reactions under the same roof, which hosts aesthetically conscious guests with discerning palates.

Matt Hollis, MH Architects, San Francisco, California, USA



The south-west corner of Titus Winery is characterised by the covered hospitality area overlooking surrounding vineyards. Exterior materials include: cedar soffits; concrete board-form tilt-up walls; gunmetal blue panels above windows; and anodised aluminium window frames.

MH Architects designed the Titus Winery finishes as an honest expression of the wall assembly materials. The firm exploited the materiality and the texture of concrete on both the interior and the exterior, leaving the surface exposed wherever possible.

In the US, thanks to the reduced cost from quicker construction, metal buildings are far more popular for wineries than the alternative concrete. In the case of Titus Winery, however, concrete was well-suited as a structural solution over a metal building for several reasons. As the building site was placed on a raised earthen berm to mitigate flood risk, considerable effort was made to reduce the vertical height of the structure and blend the edifice with its surroundings. The large roof spans at the fermentation and barrel storage rooms were achieved with flat metal trusses anchored into the concrete walls. As opposed to the tall sloping gables of a rigid-frame metal building, the flat metal trusses emphasised the winery's horizontal lines rather than the vertical.

Storage

In addition to minimising the building height, thermal qualities inherent to the stereotomic concrete walls provide benefits associated with the barrel storage room. Wine barrels are stacked five high and maintained at a

temperature of 14°C and about 70% humidity to ensure consistent conditions during the two-year aging process. The exposed concrete surfaces on the floor and walls exploit the natural temperature storage capacity of the concrete, reducing energy costs over the lifespan of the building. As concrete performs well in wet environments, epoxy floor coating was avoided. Under-slab moisture was balanced above slab by high humidity and wet conditions occurring in both fermentation and barrel storage.

The interior material finish pallet consisted of concrete, mill-finish aluminium window and door framing, gunmetal blue finish wall panels and wood soffits. On prominent walls, an intentionally rough horizontal board-formed finish was maintained throughout. Inside the hospitality room, a recessed linear LED light fixture rakes the textured concrete wall surface to generate dramatic shadows along a hallway. The board-form joint pattern was repeated in the wood slats, comprising the interior walls and suspended ceiling.

Form

Titus Winery's exterior is a balanced composition of varied-height, layered horizontal roof planes. Similar to the interior, exterior materials include wood soffits, concrete board-form walls, gunmetal blue panels above the



(Photo: Tim Maloney, Technical Imagery Studios.)



Above: Formwork for cast-in-place board-form walls for perimeter of Hospitality space.

windows and mill-finish aluminium window frames. A red cedar overhang lines all roof perimeters and caps the horizontal board-form pattern that characterises the building's form.

The board-form texture strategy was a subject of thorough consideration. The single-storey walls that define the hospitality and administration spaces were cast-in-place and the board-form pattern was integral to the vertical wood formwork. As the walls that define the 6.7m-high spaces of the barrel storage and fermentation rooms required fewer window and door penetrations, the tall walls were created with board-form tilt-up concrete panels. In both the cast-in-place and the tilt-up applications, 2 x 6 boards were laid out with 9.7mm-wide gap in between. After building a series of mock-ups with varied spacing, it was agreed that the 9.7mm-wide gap allowed sufficient concrete to ooze between the boards to generate the desired striated texture.

The rough board-form pattern was reserved for the building's exterior and for certain signature wall surfaces in the hospitality room interior. The smooth



Above: Overhead crane-boom pumping concrete for tilt-up concrete board-form walls, with block-outs for windows and door openings.

side of the tilt-up walls was always oriented to face the interior of the production spaces. In addition, all vertical concrete surfaces in production areas were dry-sacked to minimise niches for bacteria refuge, ensuring a sanitary environment.

Aesthetic and functional considerations directed choices in surface finishes and additives. Scofield dark-grey integral colour was added to all concrete walls, allowing a dramatic background to the shiny metal fermentation tanks and catwalks in the fermentation room. Xypex 500 water-resistant admixture was used for poured-in-place walls to mitigate water infiltration at wall assemblies. Recycled fly ash was added to the mix for walls and floors throughout as a partial replacement to Portland cement, greatly improving the strength and durability of the concrete. Floors in the fermentation and barrel storage rooms were treated with brush finish to allow a modicum of slip resistance for pedestrians and forklifts when the surfaces are wet. Floors in the hospitality and administration areas were smooth-trowelled, finished with liquid hardener and clear seal. ■

Below: Intersection between cast-in-place board-form walls with tilt-up board-form walls.



Titus Vineyards

Location

California, USA

Client

Titus Vineyards

Architect

Matt Hollis, Principal + Lead Designer, MH Architects
Helen Vasquez, MH Architects

Project manager

Mike Muelrath, Applied Civil Engineering
Rich Burris, Structural Design Group

Structural engineer

Contractor

Steve Kilgannon, Facility Development Construction

Concrete

Subcontractor

Muse Concrete Contractors

Rebar subcontractor

Harold Smith & Sons

Construction start

2012

Completion

2015