1992

A midwest winery

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A midwest winery

by

Douglas E. Finck

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of

MASTER OF ARCHITECTURE

Major: Architecture

Iowa State University
Ames, Iowa
1992

Signatures have been redacted for privacy
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PREFACE

One of the principle ideas of this thesis is the questioning of borders and limitations. I feel that in some instances it is beneficial to break through barriers and conventions in order to benefit participants or to enhance an overall experience.

This document was arranged to show the development of the winery design. Drawings and sketches are accompanied by text in order to help explain the thought processes. I arranged the document along a horizontal format to accommodate this text-figure interrelationship and to express the horizontal nature of the design. A system of proportionate boxes was set up to define spaces for text and figures. Some sketches flow beyond the restraints of these borders implying the need to occasionally break conventions.
INTRODUCTION

This thesis is concerned with the reciprocal relationship between the built environment and the landscape.

The site is considered not as a static object but as an animated force that is in a constant state of change. While promoting growth and decay, the site simultaneously anchors and stabilizes, emerges and erodes.

I utilized the inherent qualities of the site to produce an architecture which is expressive of the qualities and functions of the site. The architecture exemplifies the nature of the site.
In this reciprocal relationship between site and architecture and through expression of codependency, a harmony is achieved; a mutual respect is established and the borders between architecture and landscape become questioned lines which are continuously drawn and erased. Edges are expanded into spatial margins, termination points become points of transfer.
"...Nature is unlike art in terms of its product - what we in general know it by. The difference is that it is not only created, an external object with a history, and so belonging to a past; but also creating in the present, as we experience it.

As we watch, it is so to speak rewriting, reformulating, repainting, rephotographing itself. It refuses to stay fixed and fossilized in the past, as both the scientist and the artist feel it somehow ought to; and both will generally try to impose this fossilization on it" (Halpen, 1989:249).
PRECEDENTS

Introduction

The precedents I studied served as a base on which I could build an understanding of what a winery is in essence, a source of inspiration; they exist in art, literature and in reality. They can be experienced visually, mentally, and physically. I drew from bits and pieces of the wash of images to arrive at a solution. The result is a Mosaic of history, technology, and fantasy.

A winery has attributes of a farm, a factory, a laboratory and a "savory". (I use the word savory to describe a place where wine is tasted and enjoyed). It is a place where wine is produced and relished. A winery may pick up on any or all of these motifs. It is a hybrid of process and pleasure. Hugh Johnson illustrates this idea in the following statement: "Farmer and artist, drudge and dreamer, hedonist and masochist, alchemist and accountant - the wine grower is all of these and has been since the flood" (Johnson, 1989:7).

I've chosen to highlight a few wineries that approach the problem with divergent methods. I felt that these wineries would aid in addressing issues that are of interest to me. The three projects are: Quady Winery in Madera, California by Stanley Saitowitz; Lenz Winery in Peconic, New York by Mark Simon; and Clos Pegase Winery in Calistoga, California by Michael Graves.
Stanley Saitowitz is masterful in coordinating highly functional architecture with a strong relationship to nature. In Quady Winery, a modern production facility is melded with the landscape to create a harmonious coexistence.

Mark Simon assumed an agrarian approach in the design of Lenz Winery. He employed existing farm buildings to create the image of a European farm grouping. Simon’s attitude was one of living off the land.

Michael Graves was selected as the winner of a competition to design Clos Pegase Winery. His scheme adopted a classical attitude with mythological ties to the legend of Pegasus, the winged horse. I paid particular attention to his views toward nature as a force to be controlled and dominated as well as the connection made to mythology and origins of wine.

I studied each winery as best I could, given the amount of information available. I did analytical drawings to identify dominant geometrical patterns which reoccur "With no apparent relationship to place" (Clark, 1985:ix). In the case of Clos Pegase Winery, I utilized Roger Clark’s book, Precedents in Architecture, as a model to identify "formal archetypical patterns or formative ideas from which architecture might evolve" (Clark, 1985:ix). My analyses just begin to unveil the intentions of the designers. In order to fully understand the goals of each architect, a more indepth analysis involving a larger pool of information would be required.
Quady Winery
Madera, California
Stanley Saitowitz, Architect

"Warehouse at home in the country" (Brenner, 1986: 125).
Figure 2. Aerial view perspective (Lerup, 1986:200)
Quady Winery is linear in form with a barrel-vaulted roof, possibly relating to the shape of the wine barrels housed within its confines. The rhythm of columns and windows echo the cultivated rows of the vineyards. Buttresses become transitional elements between the ground plane and the roof.
1. Barrel storage  
2. Workshop and storage  
3. Grape press  
4. Fermentation and storage  
5. Grape crusher  
6. Bottling  
7. Entertainment  
8. Open to below  
9. Conference room  
10. Office  
11. Porch  
12. Wine library

Figure 5. Ground floor plan (Brenner, 1986:126)

Figure 6. Second floor plan (Brenner, 1986:127)
Saitowitz utilizes an open, flexible plan which can be changed and expanded as the needs of the winery change. The layout is "efficient- devoid of little-old-winemaker cuteness or pseudo-chateau pretense" (Brenner, 1986:125). The building reveals technology through its exposed systems and allows for expansion of new technology.
Figure 9. Geometrical analysis of elevation
Lenz Winery
Peconic, New York
Mark Simon, Architect

"Rich but not flashy- like a good wine" (Viladas, 1984:83).
In the development of Lenz Winery, Mark Simon was confronted with the task of converting a 26 acre potato farm in Peconic, New York, into a winery of distinction. Simon wanted to create a winery that was at home with its rural surroundings and distinguished enough to cater to the most distinguished oenophile. "Simon's task, as he saw it, was one of landscape and organization" (Viladas, 1984:80).

The courtyard arrangement, derived from the positioning of existing agricultural buildings, is reminiscent of European farm grouping and brings tradition to an area that lacks tradition in the wine industry. Accommodations for goats and geese were added to further enhance the "Picture of Pastoral Plenty" (Viladas, 1984:82).

The trellis system defines entrances, brings life to existing structures and provides shading from the hot summer sun, in addition to establishing a direct correlation to the vineyards through the use of "Peeler poles left over from plywood manufacturing" (Viladas, 1984:80). The peeler poles are used in the construction of the trellis system and also act as stakes in the vineyard. Once the trellis system is covered with vines, a continuance between the architecture and the vineyards is achieved.
Figure 10. Parking lot, side of the throughway and courtyard side of former barn (Viladas, 1984:82)

Figure 11. Trellises next to pool and the villa (Viladas, 1984:82)
Site Plan
1. Entry gate
2. Courtyard
3. Throughway with peripheral stable constructions
4. Former barn
5. Private villa
6. Swimming pool
7. Parking

Figure 12. Site plan (Viladas, 1984:82)
Figure 13. Floor plan (Baumeister, 1985:54)

Former Barn
1. Foyer
2. Exhibition
3. Sales
4. Visitor window
5. Tasting room
6. Tools
7. Barrel storage
8. Wine cellar (addition)
Figure 14. Parking place side of the throughway (Baumeister, 1985:54)

Figure 15. Entry gate (Baumeister, 1985:54)
Figure 16. Geometrical analysis of plan

Figure 17. Geometrical analysis of elevation
Clos Pegase Winery
Calistoga, California
Michael Graves, Architect

"Ornamentally reductive but geometrically intensified" (Filler, 1987:204).
Clos Pegase Winery emanated from a design competition that was to be a collaborative effort between architect and artist. The team chosen to carry out the project was that of Michael Graves and Edward Schmidt. Clos Pegase Winery derives its name and its thematic organization from the myth of Pegasus which is the subject of a significant painting in the owner's art collection by Odilon Redon (Architecture & Urbanism, 1989:55). Graves accompanied his team's submittal with the following statement:

The myth of Pegasus tells us that the hoofprints struck by the winged horse landing on Mount Helicon were the beginning of the spring of the Muses, the founding of the arts. The waters of the spring can be seen as providing both spiritual and physical sustenance, as the arts inspire our imagination and the waters irrigate our fields. It is fitting that Dionysus, God of Wine, was the favorite pupil of the Muses, for also within the art of wine making, there exists the duality of the process of making the wine and the pleasure of drinking it (Filler, 1987:204).

The components of the program include a 50,000 case winery with provisions to exhibit the owner's art collection, a sculpture garden and a residence for the owner.

The ceremonial and processional arrangement of the winery accommodate both the grapes and the public individually with separate, but not equal, entrances. The entrance from the working court is given more weight than the public entrance, signifying the importance of the arrival of the grapes. Both entrances are
on axis with a central court and the activities of work and pleasure are clearly separate but accessible. The formal layout seems appropriate with the theme as does the Acropolis-like arrangements of residence to the winery linked by the Grotto of Pegasus and the water emanating from it.

Where the original design of Clos Pegase Winery (not entirely executed) may seem a bit exorbitant, it is exemplary of the history and mystique surrounding the production of wine.

Yes, the wine can indeed be made in a tar-paper shack, just as it can be drunk from a paper cup. But architect and client have chosen a more elevated means of expression and in doing so have raised two ancient arts - architecture and wine making - to a height that resonates with echoes of the ages (Filler, 1987:206).
Figure 18. Site plan (Woodbridge, 1988:85)

1. Entry portico
2. Dining room
3. Wine tasting
4. Kitchen
5. Wine library
6. Toilet
7. Office
8. Owner's office
9. Mechanical
10. Hall
11. Fermentation shed
12. Crush pad
13. Employee dining
14. Bottling
15. Workshop
16. Laboratory
17. White wine
18. Wood tank room
19. Barrel washing
20. Wine caves
21. Service court
22. Parking
23. Garden
24. Vineyards
Figure 19. Site plan (Architecture & Urbanism, 1989:56)
Figure 20. South elevation (Architecture & Urbanism, 1989:55)

Figure 21. East elevation (Architecture & Urbanism, 1989:57)
Figure 22. Section (not as executed) (G.A. Document, 1988:65)
Figure 23. Geometrical analysis of site plan
Figure 24. Analytical diagrams
SITE

Introduction

The case study of this thesis, Alto Vineyards, is an existing vineyard located in the Orchard Covered Hills of Southern Illinois, north of the confluence of the Ohio and Mississippi Rivers. This fruit producing area consists of a loamy soil which was blown onto these unglaciated hills from the Mississippi River Basin. The climate in this region consists of temperate winters and hot, humid summers that foster prolific plant growth. The altitude of the higher hills protect the fruit from molds and mildews. Drier summers have no adverse effect on the well-rooted vines and even contribute to the sweetness of the fruit (Alto Vineyards, Personal Communication, 1992).

Alto Vineyards is situated just outside of the small community of Alto Pass, Illinois. This community of 300 residents relies on the influx of tourists for support as does the vineyard itself. The tourists
come to visit the many local antique shops, hike in the nearby Shawnee National Forest and view Bald Knob Cross, a 110 foot tall porcelain-clad cross resting atop the highest hill in the region (Danes, 1989). The cross is a very prominent feature in the landscape and symbolic to the community.

The vineyards occupy a wedge-shaped parcel of land bounded on the east by a two-lane highway and on the southwest by a small steam and a parallel scar of a removed railway system. Features in the site are a small pond, approximately 300 feet in breadth, a ravine that divides the site and provides drainage to the area, a well that assumes a link between the surface and the underground, and a spectacular view to the south and southwest including the Bald Knob Cross and a local cemetery. All accessible land on the site is planted with vines. Terracing is employed to expand the cultivated area and to prevent erosion.
Figure 25. View of site looking northwest

Figure 26. View of site looking north
Figure 27. Mural in Alto Pass

Figure 28. Alto Pass Library

Figure 29. Shelter at nearby overlook

Figure 30. Trellis in vineyard
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Geographic
Figure 31 - State of Illinois
(Rand McNally, 1992:17)
Figure 41 - Southern Illinois
(U.S. Forest Service, 1982)
Figure 42 - Southwestern Illinois (U.S.G.S.:28)
Figure 43 - Topographical Map (U.S.G.S., 1978)
Figure 44 - Site as It Exists
(Courtesy of Alto Vineyards)
Figure 31.

Figure 32.
Figure 33.

Figure 34.
Figure 35.

Figure 36.
Figure 37.

Figure 38.
Figure 39.

Figure 40.
Site Studies
Site Model
Scale: 1" = 150' -0"
Format: 1'-0" x 1'-6"
Material: Plaster

We, as humans, manipulate the natural contour of the landscape to gain productive agricultural land and to make that land more accessible.

This model shows the existing intervention in the form of terracing. There are limits to intervention; limits set both by man and by nature. The limits are physical and metaphysical; they are established by drainage, transportation routes, monetary and legal conditions. The site is forced to conform to these limits.
Site Model
Scale: 1"=150'-0"
Format: 1'-0" x 1'-6"
Material: Plaster

This model was severed in key locations to generate sectional views.

Figure 46. Sectioned site model
In this model the site is fragmented according to soil types which closely correspond to gradient. This investigation allowed me to focus on the site in terms of fragmented pieces, each relating to the whole and also to their individual characteristics.

Fragmented surfaces become individual forms - islands separated from the whole. The connection to the whole becomes less apparent. Borders are formed.
The site is divided into productive and non-productive areas for grape cultivation. Since productive areas are at a premium, I explored alternative building sites and developed massings dealing with these sites.

Figure 48.
Possible building locations are extruded from the land and begin to assume characteristics of building masses. These massings helped me to conceptualize the basic volumetric spaces of a specific building location. These particular massings occupy spaces that fall into the margin between arable and agrrestial land.
Site characteristics become interruptions. In this case a simple stepped form is explored as a means of spanning and occupying the ravine which separates the site.
I was interested in a building that cohabitated with the landscape and worked with what the site had to offer. I was opposed to treating the earth as a sea which we needed to float above or force aside. I wanted to be able to use the inherent qualities of the site to enhance the architecture and in so doing, create an architecture that exists in harmony with the landscape.
CONCEPTUALIZATION STUDIES

Dionysian Influence

Dionysus is the Mythic Deity Associated with the discovery of the vine and the enjoyment of its nectar. I found the mystique surrounding Dionysus intriguing and felt it could not be ignored in the conceptualization of a winery.

He personified the irrational and uncontrollable urges of man and beast... efforts to understand him are vain, for he is innately hostile to rational thought. He cannot be understood; only appreciated.

The myth of Dionysus' origins tells that he was born first from the union of Zeus with Persephone. Zeus designated this Dionysus 'Zagreus' as his heir, but the jealous Titans lured him away while yet a child, dismembered him and devoured all the pieces except for the heart, which Athena rescued and preserved. Zeus in anger reduced the Titans to ashes, from which the new race of mankind was fashioned. Thus each man contains a fragment of Dionysus within his 'titanic' earthly body. From

Figure 61.
the heart of the god was brewed a love-potion given to Semele, a mortal, who forced her lover - Zeus again - into revealing himself to her in his primal form. The epiphany was so overwhelming as to annihilate her, but the child she was carrying was saved. Zeus enclosed it in his loins until the time came for its birth as the second Dionysus. The young god grew up in Thrace, suckled by goats and raised by satyrs and sileni. When he reached maturity he descended through the Alcyonian Lake to rescue the shade of his mother Semele from Hades and raise her to Olympus; then, accompanied by a motley train of semi-human beings, maenads and panthers, he set off on wanderings throughout the world, from Libya to Arabia and India and back to his homeland. Everywhere he went he brought men knowledge of agriculture, arts and crafts, and especially of the vine and wine-making. On the isle of Naxos he discovered the Cretan princess Ariadne, abandoned there by Theseus, and made her his bride. Together they ascended to the heavens, whence he offers a similar blissful regard to his devotees, temporarily in this life and permanently after death (Godwin, 1981:132-133).
According to one of the many versions of the discovery of wine, Dionysus happens upon the savage vine which he cultivates to produce the fermented drink.

One day a drop of divine blood fell from heaven to earth. From it grew a bush with climbing vines, tendrils, and shoots. The wild vine, growing unattended (Autophues), wrapped itself around trees in a sort of natural espalier. It continued to grow until Dionysus, wandering through the world, happened upon it and recognized in the grapes swollen with their dark red juice the fruit foretold in Rhea’s Oracles (Detienne, 1989:33).

From this statement we can establish Dionysus as that link between the wild and the cultivated grape. He is responsible for first crossing the border and adapting the untamed vine for the enjoyment of women and men.

There is a pre-pruning Dionysus, counterpart of the god who causes the vine to grow (Auxites) or the leaves to multiply (Dasullios). This is the Dionysus ‘of the cultivated vine,’ Hemerides, who prunes away the wild part of the vine, eliminates irregularities, and is adept at transplanting vines from the wild to the vineyard (Detienne, 1989:34).
Figure 62. Christ in the press (Johnson, 1989:81)
The role of the myth of Dionysus in this thesis is one of playfulness, creativity and unpredictability. Dionysus represents the questioning of borders and the crossing of limits in spirit. He is the inspiration for festivities to be held beyond designated festival areas. He invokes the spirit to wander and experience wine in different contexts.

He encourages a personal, individual relationship with those who worship him, and invariably in revealing himself he wears a mask... By way of the mask that confers upon him his figurative identity, Dionysus affirms his epiphanic nature as a god who continually alternates between presence and absence. He is always a stranger, a form to identify, a face to uncover, a mask that hides as much as it reveals (Detienne, 1989:10).

Dionysus represents the struggle between order and disorder; the act of something struggling to break free of the constraints imposed upon it. In the play "The Bakkhai", the city of Thebes is representative of the order Dionysus is opposed to. Here is a description of the city from the play "The Disorderly Women" which is a modern adaptation of "The Bakkhai" by Euripedes:
Here is Thebes, we run an orderly city, each day decently divided, each year divided, work and recreation, a time and place for each, to each family a home, and a share in our good city, in our city hall, art gallery, museum, public library, in our civic theatre, ice rink, hospitals, university, in our public parks, where daffodils are planted every spring, where crocuses bloom, and each in their regular seasons tulips, roses, chrysanthemums, are planted, and bloom, and are lifted before they die, each making room for the next in orderly progression (Bowen, 1969:21).

In Thebes, there is discontent among the people, their lives are under rigid constraints. No room is left for happenstance. Dionysus arrives and provides the outlet for expression of individuality and personal experience. My project attempts to show the struggle between natural order and imposed order and the fight to break free of confines. I do this by providing opportunities to explore and discover the landscape in conjunction with the architecture and to incorporate the wine drinking experience.
The Vineyard

In the vineyard, stakes are inserted into the earth at 18 foot intervals in rows ten feet on center. These stakes are the vertical structural supports for the trellis system. Wires are stretched between the stakes which support the vines and elevate them from the ground. Each row terminates with an endpost slanted towards the ground and anchored to the earth by cable.

The construction of the trellis system establishes a rigid grid across the vineyards based on a 6:10 ratio. This 6:10 ratio closely resembles the proportion of the Golden Section, a proportional system whose algebraic and geometrical properties are frequently found in architecture as well as in living organisms (Doczi, 1981). I employed this proportioning system and carried it through to the development of the winery. The vertical supporting devices and anchoring points of the winery correspond to the intervals and spacing of the trellis stakes, thus carrying the rhythm and structural sensibility of the vineyards through to the architecture of the winery. The Golden Section is representative of the crossing of borders. It is both a rigid ordering system enforced by man and an innate ordering system found in nature; for this reason I found it to be an appropriate generating device.
ONE LENGTH OF WIRE LOOPED AROUND END POST AND RING ON EARTH ANCHOR

A THIRD WIRE CAN BE PLACED HERE TOP AND BOTTOM WIRE STAPLED TO OPPOSITE SIDES OF STAKE

6'-6' END POST 8' LONG

NOTCH FOR WIRE

12'

5' STAKE 8' LONG

8' TO FIRST STAKE

46'

2' OF STAKE AND END POST BELOW GROUND

60'

10'

18'

TYPICAL SET UP OF VINES ON TWO-WIRE TRELIS

CORDONS ON LOWER WIRE FRUITING CANES TIED TO TOP WIRE

6' 6' 6' 3'

Figure 63. A typical two-wire trellis system (Cox 1969:52)
Figure 64. Layout of vines and stakes in vineyard
The rigid grid laid out across the landscape by the trellis system implied certain geometric patterns and spatial relationships. These implied patterns were instrumental in locating structural points in the design and in establishing a cohesive bond between the cultivated landscape and the architecture.

Figure 65. Patterns derived from vineyard layout
Figure 66. Patterns derived from vineyard layout
The questioning of borders and limits is extended into activities as well. In the festival area, for example, I wanted to introduce elements which encourage participants in the festivities to wander, explore and discover. I feel that by allowing people the opportunity to experience the celebration at their own will, in a variety of contexts, the experience will be felt at a more personal level.

The exploration led to studying the experiential differences of passing through the vineyards at various angles to the vine rows. I looked at possible forms that a clearing could assume and ways in which a trellis system could span a clearing without interrupting the growth of the vine. I also was concerned with how built forms could interact with the vineyard rows and how to employ structural elements that serve joint purposes.
In these models, I experimented with the experience of traveling on a path through the vineyards towards a clearing. I was interested in how passing vine rows at various angles could produce different effects upon a person and how clearings of various shapes would be perceived upon approach. I also introduced platforms into the clearings to observe the impact of built forms upon the space.
The overhead trellis systems are a way of creating an opening within the vineyards without interrupting the meandering nature of the grape vine. The clearing serves as a secluded outlet away from the main festival area and as a method of encouraging people to explore and discover the vineyards. In time the overgrowth of vines of the overhead system will provide shade for those participating in the festivities.
Figure 69. Studies for overhead trellis system
This sketch illustrates how a platform or terrace might be integrated into the vineyard. Structural supports are shared by each and the continuance of the vine growth enhances the feeling of enclosure.

Figure 70. Plan and elevation of platform in vineyard
Figure 71. Image of overhead trellis system

Figure 72. Image of overhead trellis system
Figure 73. Studies for overhead trellis

Figure 74. Studies for vineyard clearing
BUILDING SEGMENTS

Fermentation Shed

The fermentation shed is the location where the "must", which is a mixture of crushed grapes, juice, stems and skins, is transported after the grapes have been crushed and stemmed. Once inside the fermentation shed, the must is pressed and the juice flows into tanks for fermentation.

Left to itself, the must, or expressed juice of the grape, ferments rapidly. Since the sugar that makes the fermentation possible is found in the seed, the fruit of the vine offers the spectacle of a fire that ignites spontaneously in the depths of a liquid. The wine "works", cooks by itself in the barrels, its surface is agitated by its natural heat. It begins to boil. It is liquid fire in a jar... (Detienne, 1989:35).

The fermentation shed takes its form from the activities that take place in it and the equipment it houses. The juice of the grape is metamorphosed into wine. This is the most significant phase in the winemaking process. Consequently, the fermentation shed becomes the dominant feature of the winery. The shed is cylindrical, resembling the form of the fermentation tanks. This form also allows for ease of sanitation and expresses the idea of container.

The must is brought in on the upper level in a large cylindrical basket along tracks from the crush pad. Once inside the shed, a hydraulic cylinder lifts and presses the basket against a fixed pad to extract the
Figure 75. Fermentation shed
juice. The juice then flows into the fermentation tanks on the lower level. The translucent tensile roof provides natural light and is supported by cables attached to masts inserted in sleeves along the perimeter of the shed. The cables are anchored at structural points established in the earth by the vineyard grid as are the interior supporting columns, thereupon completing the connection with the vineyard. The following sketches illustrate the development of the fermentation shed:

Figure 76. Developmental sketches of fermentation shed
Figure 77. Developmental sketches of fermentation shed
In this early conceptual sketch of the fermentation shed, the building is a simple cylinder which accommodates smaller cylindrical tanks along its perimeter. In the center is a spiral stair leading to an upper level supported by an interior ring. The juice arrives on the upper level and is distributed into the lower tanks for fermentation. In this scheme, the pressing was to take place outdoors.

Figure 78. Plan and south elevation of fermentation shed
Figure 79. North-south section through fermentation shed
Figure 80. Developmental sketches of support system for tensile roof structure
This study model of the fermentation shed was produced to help explore the idea of a tensile roof, which I employed as a way of expressing the nature of trellis construction and also to introduce natural light into a cylindrical form. This model initiated the idea of having cables break loose of their restraints and meander through the vineyards, similar to an unpruned vine.
Figure 82. Elevation, section and plan of fermentation shed
Figure 83. Plan of fermentation shed

Figure 84. South elevation of fermentation shed
Figure 85. Details for suspended picking carriage
This series of sketches explores the connection of the masts, which support the cable for the tensile roof, to the fermentation shed. In this scheme, the base of the masts rest in sleeves mounted to the shell and the upper mast is bound to the cylinder by cables wrapped around the fermentation shed.

Figure 86. Details of support masts
To develop the mast sleeve, I looked into ways things emerge naturally. In particular, I was interested in the emergence of new growth in grape vine and how I could adopt qualities of natural growth into the structure.

Figure 87. Detail sketches of grape vine
Figure 88. Developmental sketches of mast sleeve
Figure 89. Developmental sketches of mast sleeve
Figure 90. Developmental sketches of mast sleeve
The final form of the mast sleeve is an attempt to link the organic growth of vines that cling to the shell of the fermentation shed to the more mechanical connection details of the cable supports for the tensile roof. The lower portion of the fermentation shed is to be textured to provide a surface which promotes vine growth while the upper portion would be polished smooth to prevent organic growth.
Figure 93. Views of mast sleeve
Crush Pad

The crushing pad is where the wine-making process is initiated. At this location the skin of the grape is broken and the juice begins to flow. The crushing/stemming process occurs outdoors for ease or cleanup and to control insects. I thought of the crushing pad as an isolated area with processional elements leading to and from it. Because of the violent nature of the initial crushing/stemming activity, I conceived the pad as having characteristics of a sacrificial altar. The process occurs on a solid, raised platform which the fruit is delivered ceremoniously to and transported from.

As the harvested grapes approach the crushing pad the sound of gravel crunching beneath wheels can be heard. The grapes are then dumped into a hopper and the clattering of the conveyor takes over as it raises the grapes to the elevated pad where they are thrashed and beaten out of their protective skins by the crusher stemmer machine. The crushed grapes stream from the crusher stemmer into a wooden basket press awaiting on the lower pad. Traces of spilt juice flow through channels carved into the pad and eventually disappear into the earth. The basket press, guided along a set of tracks, rumbles across the wooden slats of a bridge connecting the crush pad to the fermentation shed where the juice becomes encased in the first of a series of artificial skins ranging from the oak cask to the glass bottle. The following sketches illustrate the conceptualization of the crush pad:
Figure 94. Crusher stemmer machine
Figure 95. Basket press
In the development of the crush pad, I studied structures and elements that conveyed a sense of compression. The basic elements of a crush pad are the base, the columns and the canopy. The purpose of the base is to provide a working, surface and absorb impact. The columns are used for support and the canopy provides shade and sheds water. I attempted to manipulate each individual element to express its essential purpose and convey the overall feeling of crushing.
Figure 97. Developmental sketches of crushing pad
These sketches explored the idea of compression and how to express that feeling through architectural elements such as the exaggerated keystone as a force pushing downward and tension rods resisting the outward thrust. I felt that it was a worthwhile exercise in exploring material properties but their exaggerated form, while conveying the feeling of weightiness, detracted from the activity of crushing.

Figure 98. Developmental sketches of crushing pad
Figure 99. Studies for overhead structure of crushing pad
This series of sketches was also an attempt of expressing compression, this time through post and lintel construction. Once again, I felt that the attention became too focused on the overhead structure and detracted from the activities taking place on the pad itself.

Figure 100. Developmental sketches of crushing pad
At the base of the columns on the crush pad is a reveal carved into the concrete. The reveal enhances the impact of the weight of the columns and channels the juice, spilt during the crushing process, into a basin situated at ground level.

Figure 101. Studies for reveal at column base
The vessel that captures the spilt grape juice from the crush pad is reminiscent of a baptismal font. The basin becomes a ceremonial transition point where a portion of the grape juice is returned back into the earth.
Figure 104. Section through channel and basin

Figure 105. Plan of channel and basin leading from crush pad
Tasting/Sales

The tasting/sales room is located adjacent to the winery entrance. Because this is the most frequently used space by visitors to the winery, it must be easily located upon arrival.

The entrance acts as a penetration through the wall separating imposed order from natural order. My intentions were to develop an entrance that is suggestive of traveling from one condition to another and of penetration through the wall. I envisioned the tasting room to be an inward oriented space, off of the entry, where the main focus is directed towards the wine itself, excluding, at this time, the landscape and the wine production process.
Figure 106. Studies for entrance to tasting/sales area
These sketches dealt with the problems of creating an entrance and the penetration of a linear form. In this case I treated the entrance as a form emerging from the earth and creating an opening into a different realm.
Figure 108. Studies for entrance to tasting/sales area
In studying the entrance to the sales/tasting room, I became interested in the theoretical crossing of a threshold into a mysterious marginal space between the cultivated and the natural landscape. I treated the entrance as a rupture in the wall. The opening appears as a chance happening, previously not accessible, enticing visitors to explore in anticipation of the unknown.

Figure 109. Entrance studies
Figure 110. Entrance studies
By using an alternative door system, I established significance to the entrance and forced the user to question conventions and become more aware of her or his environment.

Figure 111. Studies of entrance mechanisms
The Wall

A prominent feature of the winery is a wall which is placed on the landscape separating the cultivated from the uncultivated, imposed order from natural order. The wall becomes a figurative border between extremes. The wall is given depth to represent the region of interaction; it is a space of collision where creation occurs. It becomes a corridor, a crevice which can be inhabited and traversed. It is pierced with transparent and translucent apertures. A person can travel vertically and horizontally into catacombs and laboratories, libraries and terraces. The penetrations, accessibility and permeability signify our conscious and subconscious connections with the natural order. The wall exists as a symbol of the fact that this invisible border may be eroded, yet remnants will always remain present.
I viewed the vine-covered trellis system as a dividing screen with opaque, transparent and translucent areas made up of foliage in varying degrees of density clinging to a support system comprising of horizontal wires stretched between upright vertical supports.

Figure 113. Studies of trellis system as a screening device
Figure 114. Studies of wall related to trellis system
In the development of the wall as a dividing element between imposed order and natural order, I began to question whether the wall should appear to emerge from or be placed on the earth. I looked into organic elements, such as plant life and hair follicles, that originate beneath the surface, observing their root systems and the way they break through surfaces. The theory behind this is that if the wall is planted into the landscape, it is humankind’s attempt to restrict nature from encroaching upon its territory and if the wall emerges from the earth, it is nature’s barrier against human intervention.
With the hair follicles, I was initially intrigued by the way they broke through the skin's surface. Upon further study, however, I became more interested in their subcutaneous qualities and the way in which they seem to encapsulate a hidden space beneath the surface.

Figure 115. Studies of a hair follicle
When an object of nature is introduced or transplanted into a new context it reacts instinctively. It either accepts or rejects its given situation. If it accepts its situation, it lives in harmony with the surrounding elements and becomes a coherent part of its milieu. If the object rejects its situation, it fails to exist in harmony; it either expires or affects its environment adversely.

Figure 116.
AQUEDUCT

Existing on the site is a well which is the only human-made link beneath the surface and indigenous nutrients underground. The water from the well is pumped into a storage tank and transported, for use in the wine making process, via aqueduct to the fermentation shed. As the aqueduct spans the ravine it doubles as a pedestrian bridge to the winery. Cables, anchored into the earth at intervals corresponding to the support points throughout the vineyards, provide lateral support to the structure. The vertical supports for the aqueduct are rooted into the ground at similar intervals to the earth anchors. This physical and visual link between the earth’s nutrients, the vineyard and the winery became a very important feature in the development of the site.
Figure 117. Studies for aqueduct/bridge
DETAILS

Individual details in this design became very important elements in providing continuity and in expressing ideas. Many of the details are used throughout the project and are adapted slightly to correspond to specific needs. The details I have chosen to highlight represent connection, transference and termination.
This column-beam connection piece is used in the fermentation shed and in the crush pad. The connection is symbolic of the wall's termination at the fermentation shed in that it too terminates a linear element at a cylinder. The connection is comprised of several individual pieces that are fused together to link two individual and distinct elements.

Figure 118. Detail of column beam connection piece
Figure 119. Developmental sketches of column-beam connection piece
Figure 120. Details of column-beam connection piece
The idea behind creating a universal joint was to develop a system that could be used throughout the product as a cohesive element. This study led to the formulation of typical transfer and termination points.

Figure 121. Conceptual sketches for universal joint
One of the typical conditions in this project is the termination point. This anchoring detail is used throughout the project at the end of vine rows, as an anchor for support cables, to support the tensile roof and in the structural system of the bridge linking the crush pad to the fermentation tank.

Figure 122. Details of cable connection at tensile roof
Figure 123. Details of cable connection at tensile roof
This typical transfer point is used in conjunction with cable supports. It neither terminates nor initiates. Its functional purpose is directional change.

Figure 124. Detail of cable transfer point
Figure 125. Details of cable transfer point at aqueduct
Figure 126. Details of cable transfer point at fermentation shed
FINAL DESIGN

Site Plan

1. Well
2. Aqueduct/bridge
3. Parking
4. Vineyards
5. Highway
6. Removed railroad tracks
7. Stream
8. Ravine
9. Pond
10. Festival area
Figure 127. Site plan
Partial Site Plan

1. Well
2. Aqueduct/Bridge
3. Parking
4. Vineyards
5. Highway
6. Ravine
7. Winery
Figure 128. Partial site plan
Figure 129. Plans

1. Entry
2. Tasting room
3. Outdoor terrace
4. Grape press
5. Fermentation shed
6. Crush pad
7. Aqueduct/bridge
8. Office
9. Wing library
10. Laboratory
11. Bottling
12. Storage
13. Barrel storage
14. Vineyards
Figure 130. Longitudinal building section A-A
Figure 131. Section and elevation of aqueduct to well.
Figure 132. Building section B-B
Figure 133. Building section C-C
Figure 134. Building section D-D
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I would like to express my deep appreciation to my committee members, Mikesch Mucke and Mira Engler, for giving me inspiration and guidance throughout the formulation of this document.

To my major professor, Clare Cardinal-Pett, I owe a special heartfelt thanks for her enthusiastic support and for adding "life" to the project.

To Paul Renzaglia and Guy Renzaglia of Alto Vineyards, I owe a debt of gratitude for their valuable information and for the use of their beautiful vineyards as a model for this thesis.

I would also like to thank Gail Nonnecke for giving me access to her wealth of knowledge in viticulture.

Lastly, and most important of all, I wish to thank my parents, Leonard and Faye Finck and the rest of my family, for their continual support and encouragement throughout my educational process.