Mountain Village Ski Lodge:
Combining New Knowledge with a Favorite Memory

An Honors Thesis (ARCH 402)

By

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Abstract

The design process can be aided using frameworks that act not only as a catalyst, but also a guide. However, the design process is not something that can ever be replicated exactly more than once. So how does a designer progress through the design process to eventually arrive at what seems to be a completed and finished product? While I cannot answer that question specifically, I have documented the intricate process by which I moved through the design process throughout one semester in an architectural studio. By documenting my process and the rationale for the decisions I made, I was able to make generalizations about the way designers think and make decisions, the frameworks they use to efficiently create, and the resources they utilize.

Acknowledgements

I would like to thank Bob Fisher for advising me throughout the course of this project. His advice was crucial to the success of both my thesis and also my studio project, which is largely the focus of this paper. While Bob was only one of many professors and students whose critiques helped make my project what it was, his input was the most guiding throughout the semester.

I would also like to thank Bob Koester and Walter Grondzik for their critiques at key times in the later phases of this project. Their expertise and advice was greatly appreciated.
Author's Statement

This thesis was prepared in combination with a semester long design project for a fourth year architecture studio. The purpose of my thesis project is to promote understanding in the field of architecture, perhaps more for my own benefit than for the benefit of those who choose to read it. By documenting my design process, however, others have the opportunity to learn from the decisions I have made and my work throughout my architecture studio project. For this project, I personally chose what building, site, and program to work on. Throughout the semester I designed a nearly thirty thousand square foot ski lodge and hotel in Mountain Village Colorado, located near Telluride’s ski resort. The hotel portion is capable of holding up to nine families who wish to vacation in an area with great skiing, mountain biking, rock climbing, hiking, horseback riding, golfing, shopping, and fine dining. A café and bar are easily accessible from Telluride’s ski slopes and cater to skiers and snowboarders sliding by on the Meadows ski run adjacent to the project site.

This project has broadened my architectural experience by pulling together multiple classes into one project. In my structures class, I learned how to size beams, columns, and floor systems which contributed to the design of the ski lodge. Also, by having to design other systems like the HVAC while implementing sustainable solutions, I learned a great deal about how to work with building systems and implement them in the design process.
Site Selection

The first step in my design process was to simply decide what it was that I would be working on over the course of my last semester. In past projects, professors provided me with programs including square footages, rooms to include, and project site among other deliverables. For this assignment, I was challenged to come up with my own program, scale, and nature of the project.

The decision was an important one but not difficult. It was important because it would dictate what I would devote countless hours of my time to over a period of four months. However, it was not a difficult decision because I immediately had a good idea of what I wanted to work on. I chose to work on a project in Mountain Village, Colorado because it was one of my favorite destinations that I have ever visited. It is an incredibly charming town located next to a fantastic ski resort that will be forever etched in my mind. I figured that if was to spend a lot of time researching and working with a site, it may as well be located at a place that I would enjoy revisiting in my memory. Also, by choosing a location I was familiar with, I had the advantage of better fitting my building to the context surrounding it.

After I chose my site, it was easy to come up with the nature of the project. Because Mountain Village relies so heavily on tourism, I thought it seemed fitting to design a building that would cater to such a crowd. Another reason I chose to design a hotel and lodge was because I was visiting Michigan to go snowboarding the next week. When I visited Michigan, I kept my eyes open for inspiration and clues on how to go about designing a ski lodge.

Once I chose my general location, I used several online resources to help me locate a specific site. I began by looking at Telluride Ski Resort’s trail map of the mountain. By simply observing where the ski runs ran in relation to Mountain Village, I was able to choose a general area that would likely have large amounts of tourist activity. I then moved into map programs like Google Maps and Bing Maps to help me choose a more specific location. Google Maps provided me with important information such as where other businesses and lodgings were located. It also helped me identify where natural clearings occurred to reduce the need to cut down existing trees on the site. Bing Maps has a great 3-D aerial viewing feature that helped me pick a site based on the scale of the surrounding built context. The final step in choosing a site was to look at a Mountain Village property map that provided property lines and existing buildings. My first criterion was to choose a site that would be large enough to hold the program of my building. I also chose a site that would offer visitors close proximity to tourist attractions year round. The site I chose was located adjacent to the Meadows ski run so that visitors could
ski in and out of the lodge in the winter. In the summer, visitors would also be only a short walk to the driving range of a nearby golf course.

**Initial Research**

At the beginning of my project, it was important for me to quickly learn as much as possible about the historical, environmental, and built context surrounding my site. I utilized the library's resources to gather information about famous ski lodges, hotel design, and Colorado history.

I began by looking at traditional examples of lodge design to give me an idea of what existing architecture I could draw from as inspiration. As I read about traditional lodge design in Christine Barnes' book, *Great Lodges of the National Parks*, several themes emerged that I felt could contribute to my own design concept. The first idea was that no built thing can truly compete with the natural beauty of the environment it exists in. However, it can effectively reflect or even add to it in a subtle way. Traditional lodge design was often inspired and even built out of the immediate context. Nature's beauty was used as the basis for the design while nature's bounty provided the actual materials to construct the building. I thought it would be a good idea to draw much of my inspiration from the surrounding natural context at well, to infuse my project with the spirit of the place. As lodge design progressed, architects and designers began creating places that not only embodied and blended in with the wild nature, but also were elegant and rather luxurious. While some people felt that such design was a betrayal of the natural beauty of a place, many felt that such luxury would bring in greater numbers of visitors and help to provide future support for national parks. Christine Barnes wrote of her explorations to the national parks' lodges that they "gave [her] a renewed sense that, indeed, these are far more than buildings, but reminders of heritage" (9). For this reason, I gave high priority to making sure that my design would not only fit in with the building's context, but also celebrate it.
As I researched traditional examples of lodge design, I sketched out some ideas that I felt might be useful to help me start my own design. I tried to identify similarities in each of the buildings that could be used to give my building a related feel. By trying to learn the language of lodges before my own, I felt my building would be more likely to express a similar style. While noting similarities, I also looked for elements in each lodge that made it unique. This was important because while I wanted my building to feel like a lodge, it also needed to be unique and location specific.
After researching the lodges of the national parks, I began looking at more recent examples of contemporary hotel design. I decided to focus my efforts on Swiss hotels, because the landscape there is in many ways similar to Telluride, Colorado because of its mountainous terrain. Just like Telluride, Switzerland is a popular tourist destination for the mountains, snow, and activities associated with both. Switzerland is well-known for its use of simplicity and stability in its designs. The famous Swiss cross is similar to the architecture in that both "emphasize clear, minimal and utilitarian design, in the true sense of the word... They work with defined lines and forms, natural and high-quality materials, fresh and subtle colors" (Kunz and Hartmann 4).

Because my building would not just be a lodge or hotel, I thought it equally as important to research some basic information about bars as well. Howard Watson writes that, "Naturally, refreshments and lodging have always been linked" (7). He writes that there is nowhere better than a bar to see and be seen. Because I felt this was such a powerful idea, I wanted to make sure that the bar and café in my building would be a main attraction and interesting place to be. In addition to the café and bar, I wanted to make sure that the great room in my building would be something truly special. Visitors to the lodge would not only enjoy the surrounding environment, they would also want to come back and share the day's experiences with one another. Christine Barnes describes it best when she says that, "Within these [national] parks are remarkable shelters, but what seems most remarkable is that they still offer refuge to guests who bring the tales of the day's explorations into the great halls and dining rooms where they relive the wonders just outside the door" (9). Undoubtedly, both Watson and Barnes present strong cases for incorporating both a bar and great room into my project's program.

After researching some of the background behind lodge and hotel design, I felt it necessary to proceed by learning more about the state of Colorado and the local areas around Mountain Village, Colorado. Olga Jackson writes that, "The greatest difference between this section of the United States and many others are the color-bright sequences of land, mountains and sky, the clarity of the air, the brilliance of the stars and the infinite distances into which the imagination can roam as cloud shadows sweep across romantic and dramatic vistas and a spirit of informal living" (6). Such a description is backed up by the fact that there are fifty-one peaks more than fourteen thousand feet above sea level and a thousand more at ten-thousand feet (Jackson 79). Because those who live in Colorado likely take such pride in the beauty of their state, I thought it important to try to incorporate as much from their state's splendor as possible. Even Denver's Mayor Robert Speer said in 1916, "Ugly things do not please. It is much easier to love a thing of beauty, and this applies to cities as well as to persons and things... Every time
a private citizen by gift or otherwise, adds to a city’s beauty, he kindles the spirit of pride in other citizens” (Jackson 19).

Colorado’s built environment is constructed from a palette of materials with a rich history. The Plains Indians who used to live in Colorado built their cone-shaped tents from a framework of poles and buffalo skins which were not only easy to erect and move, but were also wind, rain, and snow-resistant (Jackson 8). While I never considered using buffalo skin as a primary material in my building, the thought that the building’s skin could respond to a number of criteria was quite interesting. The Plains Indians likely did not choose buffalo skin solely for aesthetic purposes. Likely, it was a result of the materials at hand, the intent of not wasting what was available to them, and the use of something resilient to the harsh environmental conditions. Similarly, the Pueblo Indians’ homes were built with thick walls to keep out the heat during the day and warm the space at night (Jackson 10). I decided that my building’s skin would be a success if it could meet the same criteria as the Plains and Pueblo Indian’s architecture.

Pioneer shelters and stockades were built out of locally harvested materials such as cottonwood logs, spruce, and pine lumber (Jackson 8). In a similar way, I wanted to use local materials to keep costs low, the material palette native, and pollution from transportation wastes low.

Telluride’s founding history is a very interesting one. I assumed Telluride and the adjacent Mountain Village were formed as a result of the spectacular skiing conditions in the area. However, my preconceptions could not have been more wrong. Telluride was born amid a gold strike and continued to operate as a mining village until the 1970’s (Noel 584). In fact, $900,000,000 of gold and $500,000,000 of silver were taken out of ground in the state of Colorado (Jackson 8). It is clear that for this reason, Telluride and Mountain village have a very ‘rich’ history. Aside from its valuable minerals, the town of Telluride has many other attractions as well. “The town’s Victorian architecture, world-class skiing, and summer festivals have attracted a sophisticated population” (Noel 584). Because Telluride has such a rich culture and mineral history, I felt my design should reflect that in some way.
Site Analysis and Program Development

After choosing a site based on several issues and gaining an understanding of the place surrounding it, I felt it was time to analyze the site. A site analysis is good for determining a number of criteria that help orient the building and begin to mold the beginnings of a building's form. I used Google Earth to help me measure distances, especially for sizing the site. Also, a nice feature on Google Earth allows the user to see the elevation above sea level in meters. So although I could not find topographical maps of my buildings site, I was able to roughly draw them by hovering the mouse over various portion of the site and recording them. In a similar manner to connect the dots, I was able to figure out how the site sloped. This was useful later for determining drainage conditions and how the building connected to the ground.

As previously stated, Google Maps allowed me to gather information about surrounding businesses. In addition to this, Google Maps also allowed me to identify streets and determine how visitors would likely be entering the site. This was important because later it helped me to figure out the entry progression onto the site and how visitors would first view my building. Google Maps' street view feature allowed me to even “drive around” the surrounding area and view what the surrounding context looked like from the street.

Another online maps program, Bing Maps, allowed me to view the site from an aerial 3-D perspective. This feature allowed me to determine what kinds of trees immediately surrounded my site. Also, while I was able to gain an idea of the built context surrounding my site through other tools, Bing Maps allowed me to actually view and eventually 3-D model the buildings within close proximity to my site.
In addition to such programs, I studied a Telluride trail map that I was already familiar with due to my visits there in years past. The Telluride trail map helped me to understand clearly what my site’s relationship to the mountain was. This relationship turned out to be a key one in the way that I eventually oriented my building. The trail map also showed me how the ski runs run combine into each other and make their way down the mountain. By understanding how the trails navigate to Mountain Village, I was able to better realize how skiers might find their way off of the mountain to my site. This was important for locating main entrances and exits to the buildings, and especially for providing views to and from the building.

Finally, I found a Mountain Village property map which provided me with a lot of truly useful information. The property map gave an element of realism to my studio project. By locating site boundaries, tennis courts, golf holes, the driving range, and road dimensions, I was able to accurately place my building in a very real place.

Once I had considered and analyzed all of these site elements, I consolidated all of the information I had learned into a concise set of diagrams. These diagrams ended up being guides throughout my initial design. They helped me see clearly the first big moves I had to make that stuck with the design throughout the entire project.
In addition to these diagrams, I also researched some environmental conditions for my building's site. I was able to identify solar angles at my project's location using an online tool found at http://www.susdesign.com/sunangle/. I also attempted to find information about prevailing winds, but had difficulty doing so because of the nature of the landscape. Deserts to the west and the mountain range to the east meant that the wind conditions varied widely at my site's location.
The Analysis-Synthesis Bridge Model

Once I had completed my initial research and site analysis, I utilized a framework for design called the "analysis-synthesis bridge model" to help me bridge the gap between research and concept. This model is useful in a number of ways, but mainly to help a designer move from analysis to synthesis, problem to solution, current situation to preferred future, or context to form. Such a framework for design was incredibly helpful in guiding the steps that I made along the way of the design process.

A model such as the synthesis-analysis bridge acts as the vehicle to help designers move through a level of analysis in order to progress to the next desired state of design. This particular model is organized into a four quadrant matrix. The left column represents the analysis portion where a designer identifies a problem, current situation, research, needs, and context. The right column, of course, is the synthesis where one identifies solutions, preferred future, concept, proposed response, or form. The bottom row of the model represents what is or what could be while the top row represents abstract ideas and gets at the essence of a thing. (Dubberly 57)

Up until this portion of my design, I was focused mainly on research and describing current conditions and making sense of research by analysis. By filtering and highlighting the data I had reviewed, I was in a better position to move forward with my design. I was clearly focused on the left column in the beginning stages of my design. Throughout my analysis, it was important for me to diagram and document the ideas that I was able to realize so that I could continually refer back to them. Also, by clearly documenting my process and reasoning for my decisions, I made it easier for others to give me constructive feedback. "A story of what happens suggests a model of what is – an interpretation of our research" (Dubberly 57). The synthesis analysis model helped me to smoothly move from describing to envisioning.

At this point, it was necessary for me to begin interpreting my data and trying to envision how my project might respond to such challenges and contexts. Because my site was a real place, I found it useful to try to consider how my building might change the existing conditions for better or worse. By modeling alternatives, I was able to move into the upper-right quadrant of the analysis-synthesis bridge model. The various options that I began sketching and modeling on the computer helped me realize what might and might not work. Eventually I made my way to the lower right quadrant where I actually created something real for others to view.
and critique. Once I received feedback from peers and professors, I again returned to the start of the analysis-synthesis bridge model. As my design progressed throughout the semester, I went through countless iterations of this process. In fact, by the end of the semester, I did not have a finished product, only a most recent iteration of the process. Most assuredly I could have continued with my design, but that was not my challenge and I had a definite deadline to meet. In fact, it seems as though a design is only complete when a deadline is reached, because it can always be revised, improved, and changed. I could have continued with another iteration of the analysis-synthesis bridge quite successfully I am sure. (Dubberly 57)

The Concept

A design concept is something that I have been taught repeatedly throughout my four years in the college of architecture; however I have never had a firm understanding of its purpose. My professor, Bob Fisher, explained to me that a design concept is similar to a theme for a dinner. For instance, it is generally better to plan a meal around a main concept to maximize the results. It is generally agreeable that spaghetti would go better with garlic bread, a salad, and red wine rather than a bowl of cereal, French fries, and a taco. This is not because the foods taste poorly in and of themselves, but rather they work better in combination with other complementary tastes. Similarly, a design concept is that unifying theme that runs throughout a project and maximizes the potential for all the parts to work together in unison.

A concept helps a designer to stay focused and not try to incorporate too many differing ideas into one project. Doing so would likely end up in a cluttered and confusing design, rendering it unsuccessful. My design would be driven by a set of goals that I would not be willing to change throughout entirety of the project: 1) Provide excellent views to both the mountain and also the ski run 2) Fit in or draw from the surrounding built and environmental context and 3) Provide easy access to and from the golf course and ski slopes.

For my project, I decided that my building would be like a small mountain within the greater mountain range. As I previously stated, no built thing can truly compete with the natural beauty of the environment it exists in, it can only hope to reflect or accentuate it. Because visitors would be visiting my project mainly because of the draw of the mountains, I thought it fitting to emphasize that context in every way possible. I wanted to give visitors the feeling that they never truly left the slopes. The building’s form, views, systems, circulation, and structure would all point back outside and remind the visitor of the inspiring world outside the doors.
Precedent Studies

By looking at existing projects, I was able to more smoothly make my way from the analysis to synthesis side of the bridge model. Precedent studies provided me with inspiration for a number of ways to express the goals I had set forth. Rather than looking at any and every nice building I could find, I tried to look for examples of existing architecture that also fit with my own goals.

I began by looking at precedent studies by simply searching on Google for keywords like “contemporary wood building, condominium floor plan, loft architecture,” and “mountain architecture.” The image search results provided me with a wide assortment of examples of existing structures with similar programs to my own. I paid special attention to building materials, form, scale, and relationship to context. Each of these criteria helped me quickly learn about how past projects have dealt with similar issues to my own.

I decided to use a pitched roof on my building rather than a flat roof for two purposes. The first was because one of the main features of the buildings in Telluride is sloped roofs. The second reason was because by pitching the roof, much less structure would be required in the building. A pitched roof allows snow to slide off the roof in the winter, greatly reducing the live load on the roof. While a pitched roof seemed to be a good idea, it proved to be a difficult starting place for me because the projects I had worked on in the past generally utilized flat roofs. Because I had little experience with designing pitched roofs, I turned to my favorite resource to find excellent examples of truly inspiring architecture: The Phaiden Atlas of Contemporary World Architecture. It compiles some the greatest pieces of architecture throughout the world on scales from one room homes to opera houses and entire complexes. By looking through the atlas, I was able to get my mind thinking about possible ways that I could express my idea of a built mountain within a natural mountain range, by utilizing a pitched roof.
Initial Design

After having looked at several precedent studies, I felt more confident in moving into my own building's design. As I began, I tried to keep in mind all of the goals I had set, the concept I had identified, and the information I had learned from my research. However, if I tried to do all of those things at once, it would have been nearly impossible for me to ever set pencil to paper. Rather, I initially set out to try to sketch anything that I felt had the potential to express any of the things I had learned. More important than getting my design right the first time was to fail early and fail often. By simply getting started, I began the process of being able to receive feedback from my peers and professor.
The first elements I began designing were simple massing forms and facades. While I have shown here some of my initial drawings, the process of sketching occurred throughout the entire design process. Because I relied so heavily on the computer to help me produce final presentation drawings, I used sketching primarily as a way to organize my thoughts and communicate my design ideas with my professor. My sketches helped me to begin to identify what elements of the building might be highlighted or hidden. The use of grid paper at times helped me to begin to organize the building’s façade elements into a more simplified system.

In my early sketches, I can see many elements that resemble precedents I had looked at or early sketches I had drawn while reading about lodge design. For instance, I can see in many of these sketches my early attempts to incorporate the roof into the building’s façade. I felt this was important because as skiers slid down the mountain above, they would have a clear view of my building’s roof. In somewhere like Indiana, where I am from, the building’s façade seems to be much more important than the roof. As people visit buildings or travel past them in areas near my own home, they only really ever see the building’s façade unless it is a pitched roof because the ground plane is generally quite flat. This would not be the case in Telluride, CO, however, because skiers would have a nearly aerial view of the building from higher up on the mountain’s slope.

In some of my initial sketches, I tried to incorporate the concept of my building being a mountain within a mountain range. It is evident in the roof designs that I was searching for ways to create the appearance of a mountain-like building form. In some sketches more than others, I can see that I was trying to find ways to both fit in and also stand apart from Mountain Village’s surrounding built context.

While I strove to incorporate my concept, goals, and research, it is clear that none of my initial design ideas were finished products by any means. They simply allowed me to begin moving information from my head onto paper, which can certainly prove to be a difficult process.
After performing some initial sketches of the building's form and façade, I felt it was appropriate to begin looking at how I would go about organizing my building. How the program would be fit onto the site and the relationship between spaces in the building would eventually become one of the greatest determining factors in my final design. I began this process by mapping out the sizes of individual program spaces, and comparing them with the size and shape of the site.

Again, it was extremely important at this point for me to revisit the site analysis diagrams I had created earlier in the project. They helped guide me in the decisions I made on how to go about organizing the spaces into a more cohesive floor plan. The following diagram shows how I quickly went through a number of iterations when trying to create a basic floor plan layout. During this process I was thinking about a number of varying things that proved difficult to address simultaneously. After completing one drawing that would resolve one issue, I would immediately see another issue that it would create. So I would repeat the process, resulting in a rather large number of similar drawings.

In these drawings, I was trying to organize the layout of the residential units for the upper floors of the building. I had many important factors to consider when designing these plans. First, I wanted each room to have an optimal view of the mountains to the south east. Also, each room needed to be sized appropriately for the families, couples, or individuals that would be visiting them. Finally, every room needed to have access to a hallway that would contain two egress routes to allow people to escape in the case of a fire or some other emergency. This was the most difficult issue to address because it largely conflicted with the other two. The hallway essentially blocked views in one direction and in some cases created rooms of differing sizes. Also, the egress routes, which would move not only horizontally, but vertically through
the building, had to line up with circulation routes on the first floor. The final iteration of the floor plan shown in the previous diagram was only used for a short time before being revised several more times.

Even after having performed a series of informative sketches, I found myself backtracking as soon as I began to utilize the computer for design. I once again revisited the idea of how the roof could be used to both mimic a mountain and become part of the building’s façade. I also experimented with repeated forms to cut down on the building’s cost and create a rhythm that might contribute to the overall building design aesthetically. In the third design attempt shown here, I eventually used the floor plan I had previously created to begin organizing the building’s elements.

Because the organization of this particular design scheme worked, I felt it was a good idea to go ahead and begin designing outside of just the building’s form. I began to look at the materiality of the building and the function that each façade element could employ. At this point, I was still largely experimenting with how the roof would play into the building’s form. In fourth drawing shown here, several of my earlier design ideas were beginning to meld into one scheme. The building is broken into several blocks or planes which sets the upper residential portion of the building apart from the public spaces below. Similarly, the border around the roof continues into the façade, connecting the two. The border also highlights the symbolic mountain-peak-like roof form, further reinforcing the concept of the building being another mountain within the surrounding mountain range.
The following drawings show how the building's program was organized at this iteration of my design. Had this project had a shorter time frame, such as two months, this is likely where I would have finished my project. Because the program of the building is essentially organized in a working way, I could have considered this a finished design. I would have fleshed out some more details and produced more finished looking drawings, but the design would have likely remained quite similar to this. Essentially, at this point I was finished with the first iteration of my design.
Mid-Design

My project was not over, however, and I still had several months to work on it, improve it, and design it in much greater detail. At this point in the project, I felt it was worthwhile to utilize another framework, this time for analyzing the success of a design. The framework I used was one that was invented or codified by the Roman architect and engineer, Vitruvius, around 15 BC. Vitruvius describes in his *De architectura* the three qualities that every structure must exhibit. *Firmitas* (solidity), *utilitas* (usefulness), and *venustas* (beauty) each must be achieved in order to create a successful design. When I evaluated my own design based on Vitruvius’ three criteria, it became clear that I was in no way finished with my design and had to continue making iterations of the analysis-synthesis bridge model.

The next big move I made was rotating the upper (residential) portion of my building to better address the surrounding context. After making such a move, I was able to better to meet the goals I had set forth at the beginning of the project: 1) Provide excellent views to both the mountain and also the ski run 2) Fit in or draw from the surrounding built and environmental context and 3) Provide easy access to and from the golf course and ski slopes.

In addition to rotating the floor plan, I reevaluated the elevation of my building. I decided that by skewing the building slightly, I could reduce the amount of snow that would land on the porches in the residential portion of the building. From an environmental standpoint, the building would receive less solar gain, reducing heat loads during the summer months. Also, because mountains are rarely rectangular in shape, by angling the facades of the building, I would be able to better reinforce my concept of creating a mountain-like building.
What resulted from my changes was essentially an entirely new building that performed and functioned in much the same way as my previous design.

From this point on, my project became less focused on the big moves as I began moving into the details of the building. I spent much of my time preparing for my midterm review when I would have to describe my building’s design and communicate the ideas behind it with two professors who knew nothing about my project.

In the following pictures you can see where I was halfway through the project. At this point, I again had what could have been considered a finished product. It was essentially the end of the second full iteration of my design. I began designing the interior of the building keeping in mind my concept and the goals I had set for myself. I wanted the interior to give visitors to the building the feeling that they had never left the slopes outside the walls. One of the main ways I tried to achieve this was by creating a rather unique vertical circulation system in the middle of the building. It can be seen best in “Section A” in the following pictures. The vertical circulation system essentially performed three important functions. First, because each stair turns around in the same direction, it steps back unlike other stairs, allowing the user to move from floor to floor as if he or she was scaling the side of a mountain. Second, on one side of the stairs is a large expanse of glass, providing the visitor with a strong visual connection
to the outdoors and majestic surrounding context. Finally, the vertical circulation system acts as an atrium for the building, allowing natural light to penetrate into the core of the building from the skylights above. Again, this natural light provides visitors with another connection to the outdoors, giving them the feeling that they never left the mountain slopes.

The roof form of the building is clearly a result of the previous design attempts and sketches at the beginning of the project. It's angular and varying form is intended to fit in with the surrounding context and mimic the silhouette of the mountains in the background. Clearly, there are two portions of the building. There is the four story residential side and the one to two story public side. The roof of the four story residential side is essentially a typical gable roof that has been rotated slightly. This not only contributes to the concept of a mountain within a mountain range, but it also mimics the surrounding built context of Mountain Village where nearly all of the buildings have gabled roofs. Similarly, the one to two story side of the building is a very simple gabled roof with an opening where the bar sits.

It is clear that at this point in the project, I still had little idea about what the materiality of the building would be. I did indicate some idea of the color scheme that would eventually be used, but outside of that, I had done little work on determining materials and products that could be used to further reinforce the design concept.

In the floor plans of the building, I tried to again reinforce my design concept and the goals that I had set forth. I set up a rhythm of the interior rooms that played off of the angle of the rotation of the residential portion of the building. The café and bar sit alongside the ski slope that runs along the north side of the site. This placement of the dining areas would allow skiers to simply ski up to the building to enjoy the facilities inside. Also, all of the residential units face directly towards the mountains to the south east, providing those who stay at the lodge with optimal views of the beautiful surrounding scenery. Additionally, each of the rooms would also have a view of the ski slope that runs past the site to the north.
Final Design

After presenting my work to my professor and two others during the midterm review, I was given a lot of feedback to try to help me further improve my design. The main advice I was given, was to identify several important ideas that could not be compromised, and try my very best to make those truly special. My main goals and concept had and would remain consistent throughout the project, but I had too much going on in my design. I finally decided that my structural system was working against me and hindering my ability to best convey my idea of a mountain within a mountain range. Because I had essentially two structural systems clashing in an awkward way, I spent a great deal of time trying to get the two to work together. In the end, I made a big change when I eliminated an awkward angle and reset the building’s structural grid. By doing so, I was able to more effectively organize the spaces within and allow the structure to play a bigger role in defining the aesthetics of my design.

The midterm review also gave me a list of several other issues to think about and address. Because my roof pitch on the residential section of the building was so slightly sloped, it created a small, seemingly unusable space at the top of the roof. The professors suggested that I give the rooms on the top floor that space, providing them with a sort-of penthouse effect. After working with this for quite some time, I eventually realized that I would use the space to store cooling units for the residential air conditioning system. Other smaller issues to address included window treatment, material detailing, joinery of building masses, and egress routes.

A large portion of my time in the next several weeks was spent detailing how the mechanical and structural systems would work. I used my own professor and others to give me advice on how to go about designing the HVAC and structure. In my building systems class, I had learned how to size, zone, specify, and lay out HVAC for a building. However, it was not until this project that I had ever been challenged with incorporating it into my design. Fitting the building’s systems into my design in a way that not only worked, but also complimented it as well, proved to be quite a difficult task.

In addition to HVAC, I articulated in much greater detail how the structure of my building would work to make my scheme more unified and clear. I reworked the structural grid to make my floor plans simpler. I also tried to expose the structure of the building whenever possible to give the visitors the opportunity to see the structure as an organizing element and something that contributed to my design scheme. In the end, the structure was not an after-the-fact part of my design. The structural system eventually helped to create and define spaces within my building that would not have been successful without it.
Analyzing the Success of the Project

Although my project was over for the semester, I felt it important to again revisit my design and analyze it one last time. Once again, I used Vitruvius' framework for analyzing design to help me determine in what ways my project succeeded, and in what ways it may have failed or come up short. Vitruvius' first criterion was *firmitas* or solidity. When I looked at my building's structure, I was greatly pleased with how it had turned out. The structure of my building eventually helped to define a clear floor plan and organize the building’s spaces. On the outside of the building, the structure was a main feature in the design of the facades. The system is quite clearly visible from any viewing angle outside of the building. This was important because the structure was a main feature in fitting in and drawing from the surrounding built and environmental context, which was one of my initial goals. Inside the building, the structure provided a pleasant aesthetic experience for building visitors. It was visible to help orient visitors to their surrounding interior and exterior environment. Finally, I felt the structural system was a success, quite simply because it could work in real life. Because I sought help from professionals on a regular basis, performed my own research, and creatively utilized what I learned, my structural system was a realistic and interesting one.

The next Vitruvius quality I evaluated my design based on was *utilitas* or usefulness. In this particular area, I think my design may have fallen somewhat short of true success. While I made great progress throughout the semester in defining spaces and places that would be both enjoyable and useful to the visitors, I think I may have made some hasty conclusions at the very beginning of my project. Because I had visited Telluride in my younger years, I chose to design a project there. I still think that was a fine decision and one that I do not regret. However, I chose to design a ski lodge and hotel without first defining what the area could truly use. Perhaps Telluride and Mountain Village do not need another hotel-like place. Perhaps I missed out on a great opportunity to design something that could have been truly beneficial to the small town of Mountain Village. In any case, I think I may have too quickly drawn up the project program based on my own wants and desires, and not on real information I found. This may have contributed to a lack of realism in the project which I found popping up repeatedly during my design reviews. Critics would sometimes ask me why I chose to design a ski lodge and hotel and quite frankly, I never had a good answer for them. That should have been good cue for me to go back and reevaluate some of my initial decisions and assumptions.

Finally, the last Vitruvius quality I used to assess my design’s success was *venustas* or beauty. This is without a doubt the most difficult quality to assess in my design for several...
reasons. First, because I continually strove to create something beautiful, it is difficult for me to look back and point at places in my design that are not pleasant. Because I did not have a client as I would in the real world, I had to constantly make decisions based on what I thought looked right or wrong. For this reason, I likely think my design is more beautiful than others might. However, being my own greatest critic, I do know that there are areas of my design that fell short aesthetically. I do not feel the need to list them here, but it is clear that no design is truly complete until a deadline is met. If it would not have been for the end of the semester, I would likely be performing yet another iteration of the analysis-synthesis bridge model and striving to improve my design further in some way or another.

Another reason venustas is difficult to assess is because it is less objective than the other criteria. Because beauty is in the eye of the beholder, it is something that is very subjective in nature. The greatest critique of my work I received was on the fire stairs that ran vertically through my building. Several professors mentioned to me that they were not working with my design scheme and required further attention. I however felt they were performing well in my design scheme, and while I spent a great deal of time trying to change them, I eventually left them the way they were. Again, because I was my own client in this case, it was difficult for me to take my professor's feedback and change something I felt was working already.

Another way I critiqued my work was based on the three goals I had set forth at the beginning of the project. First, I wanted to provide excellent views to both the mountain and also the ski run. I feel I achieved this goal very successfully throughout the entire building. All of the public spaces and residential rooms are afforded great views of the surrounding environment because that was a main factor in the orientation of my building and the layout of my floor plans from the very start. Second, I wanted to fit in or draw from the surrounding built and environmental context. I think I achieved this successfully as well in many ways. The materiality of my building draws from the surrounding built and environmental context. The building's roof form mimics both the mountains and is also an abstraction of the typical gable roof that can be commonly found in Mountain Village. Finally, I wanted to provide easy access to and from the golf course and ski slopes. This was very successfully done by placing public spaces on the first floor near the slopes and golf course. By doing so, my design was more successful than if I had not identified that goal from the start.

Perhaps the greatest failure of my project was in its lack of environmentally sensitive design strategies. In a world today where terms like "green" and "sustainability" are more important than ever, I feel I have a rather large hole in my final design. Because I failed to include environmentally sensitive design in my goals from the start, I largely ignored it.
throughout the course of the project. Other decisions such as views to the mountains and location of public spaces next to the ski slopes took precedence over something that should not have been put on the back burner. If I had to do the project over again, I would include the environment as a design criterion from the start. If my project deadline was pushed back further and I had to continue with my design from where I left off, I would without a doubt hit that aspect of my design harder than anywhere else. While I did think about the environment in some of the decisions I made, I did not fully commit to successfully achieving a green building. Whenever it was convenient, I simply ignored the environment and made decisions based on my own desires.

Because my project was not perfect by any means, I felt it was important to revisit it and analyze it one last time. By doing so, I was able to learn more about my own design process and evaluate the successes and failures of this particular project. I will be better off in my next project for having put so much work into the design and analysis of this one.
Works Cited


