THE FIRST ELEMENT: THE WALL
The Wall

The first element of the redesign for the downtown of Blacksburg are two walls that runs parallel to the street and the buildings. In image 20, the two walls are highlighted in red. The wall serves several purposes: it defines an arcade along the sidewalk; it becomes a moment of transition between the sidewalk and the street; it supports the basic functions of a street and sidewalk; and it creates an additional facade for the buildings that comprise the two blocks of the downtown.
The wall is constructed of steel truss columns that are set into the foundation every 36". Larger truss columns are positioned at the exterior walls of each building downtown, sectioning off the wall according to the existing placement and distinction of the downtown buildings. The large truss columns become the holders for the beam walls that stretch across the street (as shown in image 22).

All of the columns are linked by horizontal cross members (image 23), which are welded into place. The cross members increase the lateral support in addition to providing a hanging point for the cladding material, which are metal panels.
Due to the perforation in the metal panels (images 26, 28, and 30), light is allowed to transmit through the wall, therefore, preventing the wall from creating pockets of darkness. In addition, the panels are placed in the following arrangement: every three panels are either perforated metal with the corrugations running vertical or horizontal, or the place for a panel remains void (image 25). The consequence is that each section of wall has an arrangement of panels which has the appearance of randomness, even though there is an underlying pattern.
A significant enhancement that the wall along Main Street provides, is the establishment of an arcade. The wall creates a barrier on the street side of the sidewalk and the buildings serve as a barrier on the other side; thus generating a semi-enclosed area that is at the scale of a person. This is a place designed for people. It is a space that allows people to comfortably stroll through it, while reinforcing the idea of a room within a downtown.

To enhance the condition of the arcade, some of the building facades have been recessed. Each recession is dependent upon the existing location of the front entrance into each building. Therefore, the alterations are dimensioned between 3 and 12 feet depending on each particular building. Images 31 through 35 are sketches of the cuts made into the building facades. The result of the alterations is an expansion and compression of the space as one walks down the sidewalk. The dashed lines in image 36 indicate the changes made to the facades.
The addition of the arcade creates a richer environment for the individual walking down the street. As opposed to the standard sidewalk, the components that form the arcade unite the small scale of a person with the larger scale of the canopy and the existing essence and pattern of the downtown. The arcade goes beyond a place for walking and serves to connect each person with a greater idea and purpose.
The element of the wall is also a place of transition between the street and the sidewalk. Image 46 highlights the area of transition between the sidewalk and the street. The space is a 36° step that rises 2" above the street level. This space is significant to the comfortable shift from a people place to a car place. Images 41 through 45 are sketches which analyze the possibilities of this condition.
Upon passing through the wall, an individual is given a point of safety before proceeding to cross the street. Without such a transitional moment, the safety and comfort of a person would be lost.

The superimposed photograph above portrays the condition of the step just before it becomes the street.
The existing elements of the sidewalk consist of street lamps, trash receptacles, trees, and benches. With the redesign of the street, all of these elements have been removed and placed within the wall. The wall now becomes the holder of light, trash, people, and foliage.
Street Functions

Some voids in the wall are used to house people who wish to sit, gather, or wait (Image 56). They happen at random points throughout the wall, determined by the pattern of the hung metal panels. In addition, other voids in the wall become places to house a trash receptacle or hanging baskets of flowers and foliage (Image 55). A third function that the wall contains are light fixtures (Image 54). The placement of these necessary street functions give greater significance to the wall and its need within the downtown.
In addition to the wall's role as an arcade, a moment of transition, and container for street functions, it also becomes a second facade to the downtown buildings. The wall is broken into segments that correspond to the load-bearing exterior walls of each of the downtown buildings. The segments of the wall draw a frame around each building. Within each frame, the pattern of metal panels generates a series of voids and obstructions through which the buildings are to be viewed.
The wall creates a nice moment to review the downtown. Rather than seeing the whole of each building, one is given small glimpses through the voided spaces. The process provokes a rediscovery and a re-evaluation of an old element of the town.
The section above (Images 58 a and b) describes the new segmented wall, the pattern of the perforated metal panels, and its role as a facade. The function of the wall as a facade becomes apparent with the presence of the downtown buildings placed behind it.
To conclude, the wall is a vital part of the creation of a place. It provides a sense of safety, separation, interaction, and discovery. The wall is a crucial part of creating a place in the downtown of Blacksburg that speaks to the needs of all people whether they are coming from the town or the university. Its presence begins to define the living room for the town.
THE SECOND ELEMENT: THE BEAM
The second element of the redesign of the downtown of Blacksburg is a series of beams that extend above the street and the sidewalk and run perpendicular to the road. The beams are an essential component in the expression of the existing “elan”, the attributes and spirit, of the buildings of the downtown. In addition, the beams define distinguished spaces for both people and cars.

The term “elan” is a French word meaning vivacity, energy, or spirit. It also refers to the distinctive vigor, flair, or style of something. In the context of this book, the word is used to describe the existing condition of the downtown. This term is important in the significance of the repeated beam members that are placed down the street because the beams are placed according to the spirit and the essence of the existing buildings. For this thesis, the “elan” of the downtown is described as the exterior walls of each building.
The beams are constructed of a steel framed inner core connected to one another with steel cross members and diagonal rigid cables for shear support. The steel frame is clad with panels of glass. Each panel is attached to the frame with a metal clip and bolt that holds the corners of each glass panel. The metal clips allow the glass room to move and shift in strong winds, so as to prevent the glass from breaking.

The glass allows the structure of the beams to be revealed in addition to providing another surface off of which the light coming in from the roof can play. By opening each beam up with glass panels as opposed to an opaque material, light is allowed to travel through the space below the canopy. This feature avoids pockets of darkness within the design and creates an unobstructed view through the downtown.
The beams are nestled into the walls on either side of the street and bolted to the large truss columns that are positioned on each side of the beam. The truss column rises the length of the beam and provides a substantial moment joint to hold the beam in place. The joint creates the stability needed to ensure that strong winds and weather won’t compromise the structure of the canopy.

Image 71 is a section through the street. The red highlight indicates the moment connection between the larger truss column and the beam.
The beams placed down Main Street are significant in that they provide an understanding of the existing order or "elan" of the downtown. While the rest of the canopy is intended to impose a sense of unity to the area, the beams are an element designed to respond to what is preexisting. The purpose is to reveal moments in an environment which people experience everyday, yet fail to recognize or comprehend. Image 79 indicates with the red highlights, the location of the beams.
Each building in the downtown is distinguished by an exterior load-bearing wall which divides one building from the next. These walls define the ‘elan’ or the spirit of the Main Street. For this reason, the beams in the redesign are positioned to correspond with these dividing walls. The beams pull away from the walls of the buildings, revealing the essence that distinguishes the downtown of Blacksburg and presents it to passersby.

Images 81 through 83 are photographs taken from the town, indicating the moments where two buildings come together and consequently where a beam is placed. In image 80, one can see the role of the beams with relation to the buildings, as they wrap around the edge of the exterior-most wall.
In addition to the role of the beams in the expression of the existing 'elán', the beams also function as place makers. In other words, they help to define a place for people and for cars to separately exist.

One aspect of the thesis is to avoid discriminating between people, cars, or buildings. Therefore, it was exceptionally important to make a distinguished place for each condition. By utilizing a single element, the beam, to express both a people place and a car place, there remains a unity to the design and a reconnection to the larger whole of the canopy.

Image 89 is a cross section through the canopy. The area highlighted in red indicates the place for cars and the area highlighted in green indicates the place for people.
The place for cars is defined by the road below, the presence of the walls on the sides, and by the placement of the beams overhead. Running across the street, the beams are raised 14 foot above the ground. This spacing allows enough room for a large vehicle to move through the downtown, yet it is low enough so that someone driving down the street in a car will be constantly a part of the beat that is created by the placement and arrangement of the beams. Therefore, even in the large volume of the canopy, there is a smaller scale present and thus a smaller sense of place for the downtown.

Image 90 is a modeled version of the place for cars.
A Place for People

As previously discussed, the place for people is the arcade which runs parallel to the street between the road and the buildings. While the wall is an important component of the design, the beams play a vital role in the definition of the space as an arcade. The wall provides a barrier between the person and the cars and encloses the space, while the beams bring the scale of the large space down to the smaller scale of people.

At each moment where a beam crosses overhead, the beam is dropped down, rising 8 ½ above the ground. By placing the beam at this height, it allows people to comfortably move through the arcade, in addition to providing a constant reminder and awareness of the larger canopy and downtown.
To conclude, the beam is an essential element in creating a place to be the living room for Blacksburg. The beams are expressions of the existing, interpreters of the elan of the town, and definitions of a sense of place. It is an important component in the appreciation of what currently composes the downtown and in the expression of a design that can unite a community that is at present divided.
THE THIRD ELEMENT: THE ROOF
The third element of the redesign of the downtown of Blacksburg is the roof which spans the entire street and a portion of the buildings. The roof is an essential piece in the creation of a living room for the town in that it serves as a protector from the elements, its massive size imposes an environment within the street, and its components generate a celebration of light and shadow throughout the street.
The structure of the roof is a steel-space frame that aids in the stability of the roof. As the canopy will be most susceptible to damage incurred by the wind, the trusses of the space frame will sufficiently increase the rigidity of the arches. Therefore, the roof essentially holds its own weight as it visually moves down the street.
The Arch

The roof has three conditions. Over the buildings, the roof is at its regular length. The regular arch is composed of 32 sections which are spaced 36° apart (Image 105). The second condition is when the arch passes over both a building and an open area, such as a parking lot or alleyway, then 8 sections are added to the arch on one side (Image 106). Finally, at areas without any buildings, such as intersections, then 8 sections are added to both sides of the arch (Image 107).

The purpose of extending the arch in places where there is an interruption in the buildings is to maintain adequate protection for people passing along the sidewalk. While an individual is walking beside a building, there is protection overhead and to the side as the canopy passes beyond the facade and onto the roof of the building. However, without a building to create an enclosed area, the regular arch does not continue far enough down to create substantial protection. Wind, rain, and snow would easily be able to effect the downtown area, making the redesign useless. However, as the arch extends downward, it increases the level of protection for the person and ensures a comfortable and pleasant place to occupy.
The roof is completed at its top most layer with glass panels. These glass panels are dimensioned at 36” each and held in place by a thin metal frame, which is bolted to the steel space frame. A silicon strip is added along the seams to seal the roof from water. This final layer of the roof construction establishes a weather-proof barrier for the occupants below the canopy. In addition, due to the transparency of the protective barrier, light is allowed to transmit into the space, bathing the street in light and a unique play of shadows created from the structure of the roof.

Image 108 is a sketch of the roof showing the layers of the roof— the bottom arch, the space frame, the top arch, and the glass panels.
The roof attaches to the frame of the beam walls. A piece of metal is affixed to the underside of the bottom-most arch at 7 feet intervals. This metal piece slides into an open groove in the beam wall frame which then receives a bolt and nut to secure the arch to the beams. This detail prevents the roof from being uplifted if a strong wind should occur.

Images 109 through 111 are sketches which describe the joint between the beams and the roof.
Due to the massive size of the roof, the quantities of water coming off of the roof during a rainstorm will also be substantial. Therefore, a gutter system has been designed to address this issue. At the ends of each arch, the last bay of the space frame has been filled in on the sides to serve as the collector for rain water. Once the water is collected, it is funneled and deposited over the rooftops at specific points. At moments where the roof is extended beyond buildings, the gutter collects the water and moves it to special points at the ends of each section of roof so that the water is deposited away from passersby.

The images above diagram the flow of water over and around the roof.
The main function of the roof over the street is to provide a level of protection from the weather for individuals occupying the downtown. By providing an element to protect the people as they stroll through the town, the design creates a place of safety and comfort. While the space remains open to temperature changes, the roof structure embraces the people by allowing them to linger longer and provides a sheltered place on windy, rainy, or snowy days.

The plan above indicates with a red highlight the span of the roof over the buildings and down the street. It extends the entire two blocks of the site and in some places it stretches farther out into the street and over the sidewalks to provide added protection for pedestrians.
The Environment

In addition to the functions that the roof provides, it also satisfies the conceptual idea of the creation of an environment. The massive nature of the canopy caps off the height of the street and brings an air of importance to the area.

The canopy roof is situated 54' above the street level. At this height, the roof is able to extend across the street and encompasses portions of the downtown buildings. Individuals coming to the downtown area will immediately notice the structure, even from far away. For these reasons, the canopy becomes a landmark and a point of recognition.
The Importance

The roof serves as the final piece in the creation of a sense of place for people, cars, and buildings. The wall and the beams define the specific areas for activity, while the canopy concludes the spaces by protecting them from the elements of the weather and by unifying the area under a single entity. The canopy is the concluding element in the creation of a living room for a town.
In conclusion, the canopy creates a place out of a street. Currently the downtown exists as a group of separate spaces, which provide little appeal beyond of the merchandise or food and beverage which they sell. However, the thesis introduces an idea and an object which are designed to bring an order to the space and to unite the area. The placement of the canopy, beams, and walls into the downtown generates a space for townspeople and college students to enjoy together. It is an unbiased and limiting piece of architecture intended solely for the enjoyment of people; it is a living room for a town.
Photo Credits

Photographs 13 and 14 are the work of Alan Todd
All other photographs are the original work of the author