

Architecture Project

By Keely Smith

Using Benjamin Latrobe's designs of the United States Capitol Building and the Baltimore Basilica as my inspiration, I created a model and a blueprint of a chapel of a Greek Revival-style church. The reason I chose to design a model of a church rather than another structure was because churches often have beautifully ornate designs that are common in Greek Revival architecture. In addition, churches can be extremely large, stately structures which are thus able to support the delicate details I wanted to explore. Furthermore, there were no demands from a client for this project, so creating a church allowed me to formulate a structure with the basic architectural needs that most churches require, yet it provided the freedom for me to express my own architectural flair. Although there were minor setbacks, executing this project helped me to better understand the work it takes to design, draw, and construct a model, which were all necessary to bring my vision to life. Stepping into the shoes of an architect has made me realize that although this career path is not easy, it is definitely worth the work required and is a path that I would indeed like to pursue.

The blueprint I created includes the views of each side of the church as well as its interior. I drew each sketch to scale using the ratio of one quarter of an inch equivalent to ten feet. I labeled all the dimensions of the church on one set of blueprints, while on the other set the dimensions were not included so that I could show a more streamlined design. In order to make the blueprint, I used graph paper which helped me to keep the drawings to scale. A T-square was utilized to make straight lines and angles and to accurately measure the dimensions for the church. I also used a mechanical pencil with an ample eraser to correct my numerous mistakes.

The interior of the church as displayed in my blueprint reveals a small foyer called the Narthex at the entrance to the chapel as well as seating in each wing (the Nave and the North and South Transepts). An exit through a portico is located at the end of each wing, with the side porticos supported by two columns being complementary to the stately front view of the structure which boasts four columns. The heart of the chapel contains a semicircular stage with the pulpit in the front and center. Directly behind the pulpit lies the pipe organ, which being forty feet in width and height requires substantial space. The pipe organ is strategically placed in this area due to my research into the acoustics of similar buildings. This placement allows the music produced by the organ to go into the crossing, which is the area directly under the dome, allowing the sound to travel unimpeded into the North and South Transepts as well as the Nave. If walls were placed in front or to the sides of the organ, the sound would bounce off creating a cacophony rather than beautiful music. There are doors on either side of the pipe organ to allow the choir to enter and exit the stage area, and arched bleachers for the choir are located on either side of the pulpit. Most churches of this size have similar structures to allow for adequate seating allowing as many people as possible to have a good view of the pulpit and stage area, including those seated in the transepts.

I felt it best to include a model as well as my blueprint to showcase my design because the model allows the visualization of what the exterior of church might actually look like, while the blueprint gives more precise details and provides a view of the interior of the structure. By first creating the blueprints, this gave me a very detailed plan to use for my model of the exterior of the chapel. In order to construct the model, I used foam adhesive to glue various pieces of foam together, and I used foam board for the roofs of the porticos that were supported by wooden dowels representing the columns. I had hoped to use balsa wood, which is a common

medium for architectural models, but I could not find pieces with the correct dimensions, especially when considering the construction of a dome. That being said, the foam I used was helpful because it was already in geometric shapes, which made it easier for me to keep everything to scale and precise. Because the foam was a shade of green, I had to prime and paint the foam white to mimic the white sandstone blocks from which the actual church would be constructed, much like the exterior of the Baltimore Basilica.

Benjamin Latrobe's designs of the US Capitol Building and the Baltimore Basilica were inspirations that both have a strong correlation to many of the aspects of my model chapel. For example, my church's large size, the capacious dome covering the heart of the church, and the substantial porticos supported by imposing columns are all elements found in both of Latrobe's buildings I previously studied. The cross shape of my church is very similar to that of the Baltimore Basilica, but it is also an extremely common shape for most churches. Although my model structure is more closely related to the Baltimore Basilica, I chose to have only one large steeple instead of two smaller ones. I also included Corinthian columns, as found in the Capitol Building, as opposed to the Ionic columns present in the Basilica. The main difference between the two types of columns is that Corinthian columns are more ornate, incorporating delicate details like the carvings of tobacco leaves found on the columns of the US Capitol Building, while Ionic columns are distinguished by decorative carvings which are more simple and streamlined. One of Benjamin Latrobe's greatest accomplishments as an architect was to create an oval-shaped dome for the Baltimore Basilica instead of the typical spherical-shaped dome. Because of my merely novice abilities as well as the availability of a circular shaped piece of foam to use as a building material, I chose to make the dome over the heart of my church the more traditional spherical shape.

Because becoming an architect involves many years of schooling and in-depth knowledge of certain mathematical concepts that I have not yet learned or experienced, I found the task of creating a model and blueprint to be fairly difficult. I found that it was to my disadvantage that I could not and would not without significant training be able to fully understand structural rules and all of the thought processes that a real architect would have to go through before designing a building. That being said, I used all the knowledge that I have collected in my past few years of studying the career of architecture and from helping to design my father's house in North Carolina to build the best model and blueprint of a church using Greek Revival style-design that I could in the most professional way possible at my novice level.

Difficulties that I encountered while creating my model in particular were numerous, but after much trial and error, I was able to build a structure that I felt adequately conveyed my vision. To begin with, I struggled with which medium I should use for my model because most architects use foam board or balsa wood, which is a thin wood that is easy to cut and is extremely lightweight. I could not find pieces of balsa wood in the craft stores that I visited which were large enough to build a sufficiently sized model. Since I would have struggled with cutting the pieces of the foam board and was not sure how to construct a dome, I was lucky to find foam pieces that did not require cutting in most cases. Because the foam pieces were already in geometric shapes, I was able to simply use foam adhesive to glue them together to construct the main portion of my model. I did have to use foam board for the roofs of the porticos, and because my exacto-knife was not sharp enough, I had many difficulties in cutting straight lines, therefore taking me far longer than it should have. The foam pieces that I used for the body of the model of my church were originally green, so I had to use spray paint to give them the white coloring I hoped would represent the white sandstone blocks I had envisioned as the building

materials for my church. Unfortunately, the foam just soaked up the paint, so I had to use primer and then many coats in order for the white paint to show. The steeple of my model was made out of a different, coarser and more porous type of foam than the rest of the church, and because of this when I put paint on it the steeple began to disintegrate. Thankfully, I had an extra cone with which to replace the rapidly deteriorating one, and this time I covered it with white duct tape instead of paint. My final problem in constructing the model was fitting the columns in between the roofs of the porticos and the platform on which they stand. Although I measured the distance and the dowels when cutting them, my measurements or cutting techniques must not have been accurate enough because a few of the columns did not fit correctly, so I had to use the white duct tape to make them more stable.

If I were to do the project again, I would make my columns more detailed on both the blueprints and the model. I envision the columns as being very ornate Corinthian columns, but I could not display this in my project because the wooden dowels were too small and hard to work with to make any type of design on my model. Also, the delicate decorations found on Corinthian columns are too ornate for me as an amateur to even attempt to draw on the blueprint. Since the US Capitol Building makes use of tobacco leaves and another of Latrobe's designs uses magnolia flowers on its columns, I thought instead of olive or laurel leaves which are typical on Corinthian columns, I might like to use local flora. For example, I could use mountain laurel or rhododendron designs for a church built in the mountains or possibly incorporate peach tree flowers or foliage for a church in the Atlanta area. I also would want to make a project in which the interior of the church has more detail in the designs because I focused primarily on the exterior of the structure with only one view of the inside of the church. If I could do this project again, I would specify the shapes and locations of windows as well as possible designs of stained

glass when appropriate. I would also spend more time considering the interior of the dome, such as focusing on details such as the molding and paintings on the inside of the dome. I suppose an artist would need to be commissioned to create that type of work in an actual church.

The degree to which I executed this project successfully depends on a person's view of it. For an amateur who has not had any formal training, I believe that I did a fairly good job of transforming my vision into a two-dimensional blueprint and a three-dimensional exterior model. Some of the best qualities about my project were the porticos of the model and the different views of the structure on the blueprint. I believe that my porticos were especially impressive because they were the most difficult aspect of the model to assemble, yet I was still able to construct them successfully. It was extremely important to make sure the angle of the roofs were correct so they would align with the roof of the main church and the columns. Furthermore, I believe the side view of my church in the blueprint was well executed because I found it somewhat difficult to visualize what it would look like and the dimensions you would see from the side, but after much thought and calculation of the dimensions, I think that it became one of my strong points in this project.

For an architect, my project would be considered a careless, inadequate monstrosity that could never be used in real life due to its lack of attention to structural support, crudely measured angles, and lack of detail in both the model and the blueprint. Although I did try my best in the measurements and details, I know that my novice work would not be sufficient for a real architect. Since I have not yet learned the necessary physics, math, and other structural rules, I could not make a true model that represented what its structural stability would be like, and I therefore could not draw that in my blueprint. For that reason, if I were to do this project again, I would want to have been taught the various structural rules to make the model more realistic and

I would want to make individual blueprints of important aspects of the church like the design on the Corinthian columns instead of just the various basic views of the building.

I am very glad to have been able to make this project because not only did I learn a huge amount of information about the subject and design process through research and through personal experience, but also my interest in the subject of architecture was confirmed. Although my project did have mistakes and imperfections, I feel as though I was able to momentarily step into the shoes of an architect to design and assemble a successful representation of a Greek Revival church inspired by such classical structures as the United States Capitol Building and the Baltimore Basilica.