

Matthew Hayes

**Graduation Year:** Senior

**College:** Architecture

**Major(s):** Architecture

**Minors(s):** none

**Scholar Group Membership:** no

**Did you received other funding for this project?:** no

**Could you have completed this project without CUSE funding?** No

**More details on CUSE funding assistance?** My project, Developing Masonry Skills with Hope for Architecture, was centered around visiting master mason Clay Chapman. He is the only person I am aware of who is building structural brick masonry houses, so getting hands-on experience requires going to visit him. For me, this meant a 17 hour drive from western New York to eastern Oklahoma. Fortunately Clay was able to arrange economical housing for us in the development where he is working. However, the anticipated costs of travel and food over the course of a two week visit still totaled over a thousand dollars. Without CUSE assistance I would not have been able to pursue this awesome experience.

**Project Title:** Developing Masonry Skills with HFA

**Project Location:** Carlton Landing, OK

**ND Faculty Mentor:** Prof. Selena Anders

**Project Type:** Internship, (unpaid internship)

**Why did you undertake this project/experience?** Deepen your knowledge of a topic or issue, Research/experience necessary for senior thesis or capstone project, Career discernment and/or preparation

**Did your funded experience help you:**

**[Deepen your understanding of your coursework or field of study]:** Very Much

**[Discern your interests and post-bac goals]:** Very Much

**[Become confident in your ability to set and achieve your goals]:** Very Much

**[Gain a more nuanced view of local, national, or global communities]:** A Little

**[Improve your written and verbal communications skills]:**Yes

**Tell us about your experience.**

During spring break of my sophomore year, I received a CUSE grant to visit Clay Chapman for a week to work with him and learn about his way of building with structural brick masonry. I had first learned about Clay when the Students for Classical Architecture club brought him to campus to speak during my freshman year. Constructing buildings out of load bearing masonry used to be common but is virtually unheard of in contemporary building practice. However, Clay believes that structural brick is the best solution to America's current disposable building culture.

Constructing a building requires an immense amount of energy and resources. One might think

that this would lead us to minimize the number of times we go through the construction process by building structures with longer lifecycles. However, that is not the case today in America, or much of the world. Instead we use complicated methods to build things that will be lucky to last several decades. When I visited Italy last year with my architecture class, we saw buildings that have stood for hundreds and often thousands of years. Much of what we build today is pathetic in comparison, at least in terms of longevity. This is irresponsible considering the huge amounts of energy and resources being used to erect buildings.

Clay's current work is the result of his career-long search for ways to challenge our disposable building culture. He uses load bearing brick, a millennia-old technique, in conjunction with modern conventional practices. His Hope for Architecture initiative is aimed at demonstrating that structural brick is a building solution that can be inserted competitively into today's building industry. During my first visit, I got a great introduction to structural brick construction techniques. However, I was not there long enough to really become competent with many of the skills. Regardless, my interest was piqued, and I knew it was something I was really interested in and definitely wanted to learn more about.

During that first visit, Clay and I discussed the possibility of having a student build sometime in the future. This summer we realized that goal, with 10 Notre Dame architecture students visiting and working together to complete a small house in Carlton Landing, Oklahoma. At the most basic level, this was an individual pursuit for each of us...everyone funded it independently (some through CUSE, some through other funding bodies, some paying their own way), and everyone had their own reasons for being interested the build. However, once we were there, it was a team endeavor. Clay had three apprentices when we were there, and the ~17,000 brick building that we constructed was done with only student and apprentice labor. Clay didn't lay a single brick himself. When we arrived there was just a foundation, and when we left two weeks later the masonry massing for the entire structure was complete. This means that we got experience in mixing mortar, laboring, laying brick, slab reinforcement, working with scaffolding, and building arches over windows.

I've worked construction for the past three summers, and this two week build was definitely the most physically demanding work I've done. That said, everyone who was there was all-in. It was a great environment to live and work in, because everyone was driven to complete the building, and eager to discuss the philosophy behind it.

For me as an individual, it was a tremendous experience. I am by no means an expert, but now I definitely have a grasp of the masonry techniques that I did not have the chance to master the first time I visited Clay. This second visit was even more informative than the first, largely because I got to work on the building from before the slab was poured all the way until the top brick of the gable was laid. This more comprehensive experience really allowed me to learn firsthand what goes into building a load-bearing brick house.

**Describe the impact this project had, both on you as a student-scholar and on the people you worked with.**

This project increased both my understanding of the rationale behind structural brick masonry, and my construction skill set in building with load-bearing brick. Prior to this trip, I was not proficient in masonry building techniques. Now I am confident in mixing mortar, laboring for other bricklayers, and laying brick. This two week build gave me the opportunity to practice through repetition, laying over 1,000 brick. This informs me both as a worker in the construction industry, and as a student who will design projects out of structural masonry.

In addition to the acquisition of new skills, this build also served as a forum for discussion. Clay is incredibly generous with both his time and information. Many days after work we would get together with him to further discuss design, masonry construction, and urbanism. His current work is the result of a career-long search for a way to build buildings that last a really long time. Someone who has been trying and improving on something like that for years and years has a wealth of information, and a perspective that can't be found in a traditional classroom setting.

While I expected this project to have a pronounced impact on myself and my fellow students, I did not think about how it would affect others too much. However, our student build definitely demonstrates to the world that structural brick is a practical way to build. We were 10 students with very little building experience as a group, yet we were able to assemble the entire structural shell of a house in two weeks. We demonstrated that all that is really needed to build a load bearing brick structure is a desire to learn and a willingness to work really hard. It is an incredibly accessible method of construction; almost anyone can develop competency fairly quickly.

**Describe how this experience is connected to your plans as a student or future professional.**

This experience has multiple connections to my future plans. Most immediately, I would like to incorporate what I have learned about structural brick masonry into my senior thesis project. I believe that it is an important area that warrants more study; I am interested in exploring how mass wall masonry would work in the colder areas where I have spent most of my life. To date, Clay has done most of his work in Oklahoma and Georgia. Translating his techniques to areas such as my native New York would raise difficulties due to the colder climate and modern energy codes. However, I think that the potential of structural masonry is such that this possibility is definitely worth exploring.

I am still in the midst of my education and definitely still discerning the career path I want to take. However, one of the paths that is currently most appealing to me is a career in design build, combining my interests and skills in both architecture and construction. If I do this, I would like to construct structural brick buildings. This visit helped me acquire skills that I will need to do this and allowed me to continue to build a relationship with a valuable mentor. The skills and knowledge that I gained with this trip would have been very hard, if not impossible, to obtain anywhere else.

**What advice would you give other students who are planning to pursue similar projects?**

If you have an undertaking that you believe is worth pursuing, pursue it. Convince others that it is worth pursuing, and convince them to assist and/or join you. CUSE has been incredibly helpful to me during my college career. When I started thinking about a return trip to work with a master mason I had visited once already, I was a little nervous that CUSE would view it as an unnecessary "duplicate experience." However, I knew that this was not the case, and I carefully outlined why another visit was essential in my grant outline. I was fortunate enough to get funding, and in hindsight I can say that this experience was absolutely critical in preparing me for future pursuits. If you know something is worth it, go for it! Our time at Notre Dame is a tremendous opportunity to pursue education beyond the classroom. We have opportunities and support the likes of which we might not have again for the rest of our lives. Notre Dame is full of people who are eager to help you. Find others who have done things similar to what you are interested in and pick their brains. I first got into undergraduate research after hearing about the research of upperclassmen architecture students during my freshman year. Make the most of every opportunity!

I acknowledge that this form has been filled out truthfully and to the best of my ability. I understand that this information will be shared with many different CUSE constituencies. As such, I have provided as much useful information as I was able. I understand that CUSE will not complete my award disbursement until this form is successfully completed. If I have any questions or concerns, I will contact CUSE before submitting this form. To illustrate that you understand all of these points, please enter your Notre Dame email in the box below.

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