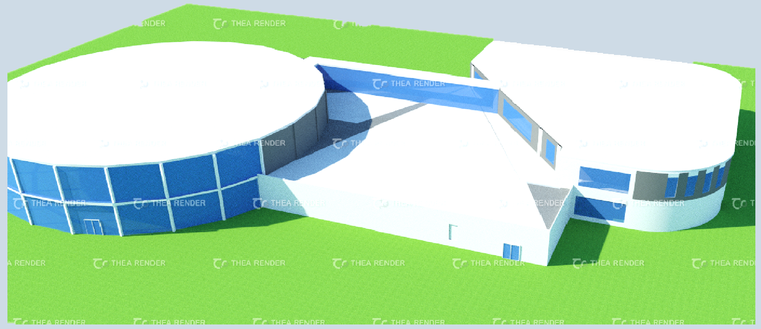
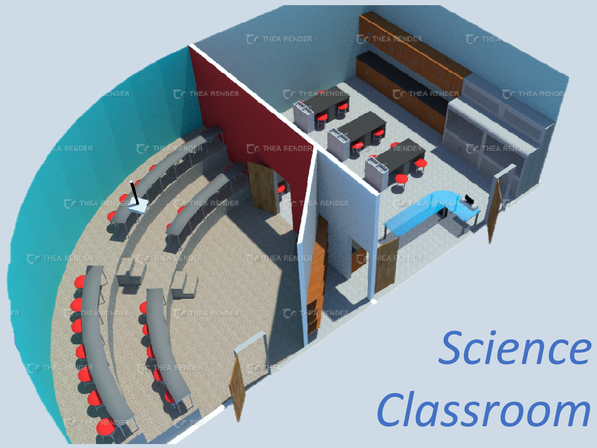
Why STEM?

STEM is the single fastest growing occupational area throughout the entire world. In order for a school to produce successful citizens it must meet the demands of the job markets at hand, which at the moment require more programmers, IT professionals, doctors, and engineers than ever. STEM subjects have also been known to help people with reasoning and perception which evident in many standardized tests such as the SAT, ACT, LSAT, and MCAT.



The STEM Building

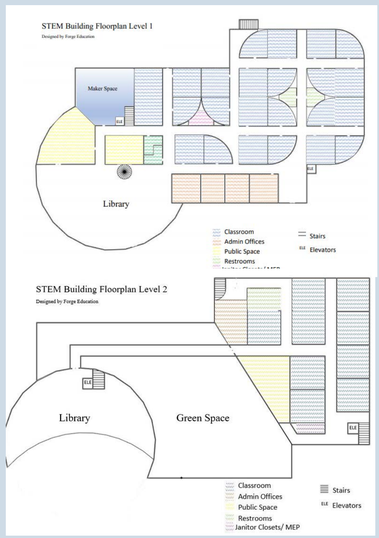
One of our three buildings is dedicated to the STEM classes. It is complete with our own ideal science classrooms, a makerspace, green roof space, and a spacious library functioning as an open workspace.



Science Classroom

The ideal school maintains a clear focus on education, and this room embodies that focus by providing spaces for both tactical/kinesthetic and auditory learning to accommodate the varied needs of a typical student body. The lecture hall permits clear vision of any presentation given by the teacher, making note-taking easier, lectures clearer, and students more attentive while the lab allows students to explore sciences directly and apply their knowledge to real life situations.

STEM Building Floorplan



Our Mission Statement

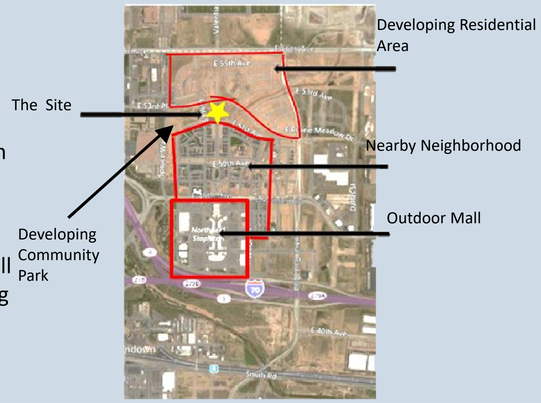
We, Forge Education, propose to develop a socially and technologically 21st century high school, providing accessible, modernized learning opportunities, reducing our environmental footprint, in order to foster a new generation of citizens. By providing learning based in STEM subjects (science, technology, engineering, and math), we will give our students the opportunities they need to succeeded in the highest growing job field.

Community Impact

The school's gym and field will be open to the public to bolster community social interactions. This can pull the community closer together around our ideal school. South of our school there is a shopping district where students can go to hang out and relax.

The Site

Our site is within a quickly developing neighborhood in Denver, Colorado. Many houses are being built in the area, but there is a lack of high schools, creating a need for youth education. Our site is 14 aces and has three buildings: the main building, STEM building, and the gym. The main building is 51,000 square feet, the gym is 64,623 square feet, and the STEM building is 79,000 square feet, in total all three buildings are 195,000 square feet. There is a shopping district directly south of the school along with a national park to the north.



Library Workspace

Open air work areas are the evolution of the workspace. By providing a space for our students to work both individually and in groups, while still allowing for social interactions, we are creating a better environment for creativity and efficiency.

Pioneer Academy

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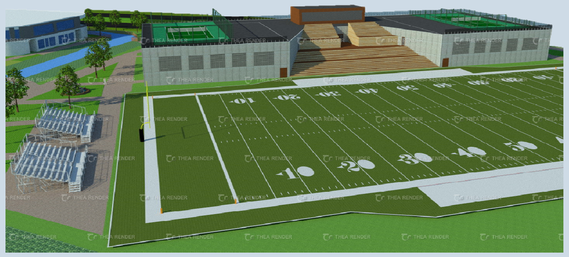
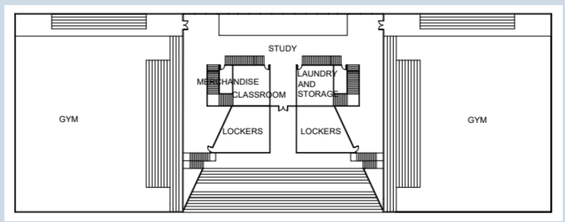
Athletics and The Gym

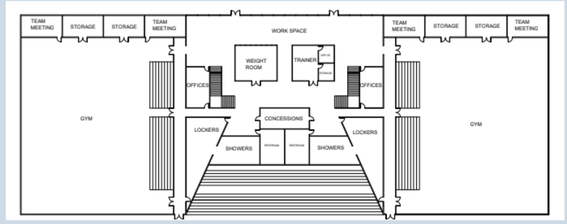


The ideal school has an impressive athletic facility. Athletics promotes competition, team work, and healthy life choices. In a sports program a student develops discipline, integrity, resilience, and leadership.

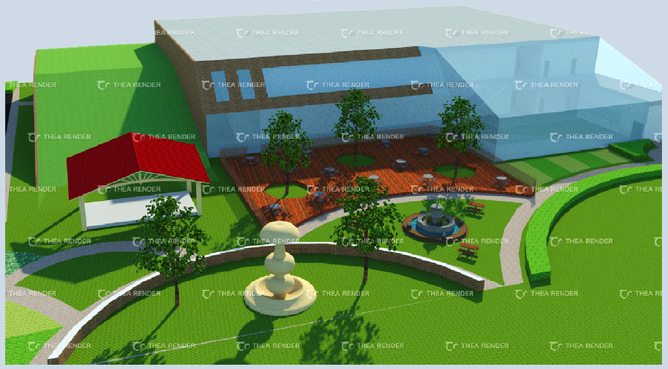
The bleachers are used to access the top floor and the second floor, in addition to the indoor staircases. The space efficiently utilizes the roof top as a tennis court and uses spaces under bleacher as hallways and as locker rooms.

Gym 1st Floorplan



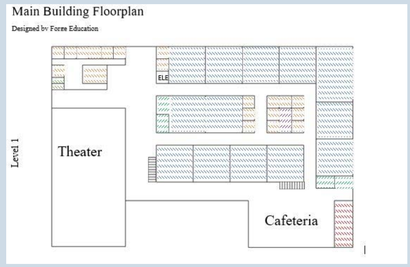


Main Building



The main building holds 26 classrooms for the humanities, including a computer lab and a studio room for art classes. The building incorporates a lot of windows to improve the learning of our students. It also includes a large theater under an artificial hill. The hill acts as seating for an outdoor amphitheater that is functional for both school and community events.

Main Building Floorplans



Project Members

Sustainability Consultant – Claire Kehn
Structural Engineer – Benjamin Negron
Landscape Architect – Sergio Morales
Interior Architect – Ethan Fowler
Athletics Architect – Lauren Meyer
Architect – Aidan Mollhagen
Construction Contractor – Mariana Mercado
Construction Contractor – Oscar Davenport
Consulting Architect – Daynmon McClure

Landscape

Pioneer Academy incorporates an existing creek system which runs through the two parks on either sides of the campus, providing a pleasant environment to the community. On the southern portion of the school a walkway runs along the creek, populated by native plants and trees for students to enjoy. Bridges connect the athletic and academic sides of the campus which are filled with common areas for students to meet, from the outdoor amphitheater to the exterior eating area.

Sustainability

Our building is environmentally sustainable in many different ways. Our school transportation will be in the form of electric buses to reduce the carbon footprint of . In addition to this, we've implemented many different types of vegetation into the school building, including native plants, and green roofs to support the natural ecosystems.

Our site included bioswales between our parking lots to increase both our aesthetic environmental appeal. Bioswales are drainages that are designed to naturally remove silt and pollutants through the use of layers of earthwork and the roots of native plants.

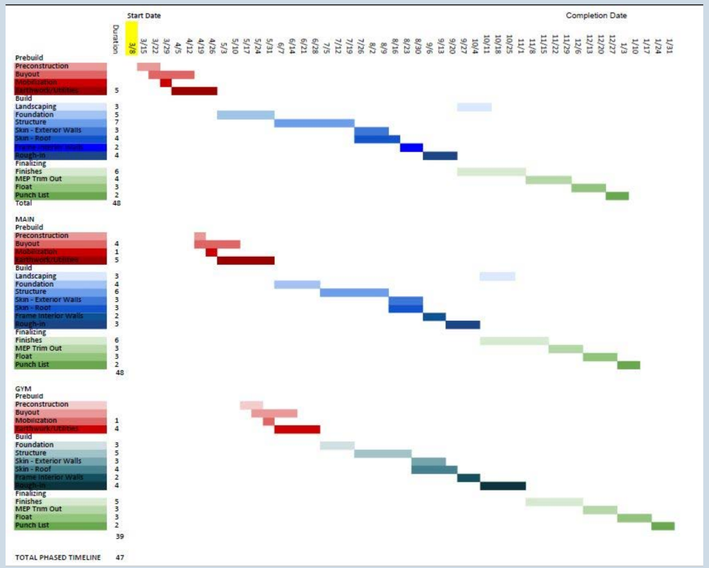
A geothermal heat pump system will be used to heat/cool the school by sticking pipes in the ground and using the ground's naturally stable temperature

Buildings are positioned to utilize natural light sources, especially the large circular library. This reduces the amount of electricity needed for heating, cooling, and lighting.

Water harvesting is the process of collecting precipitation and directing it towards uses the do not require clean water, namely watering plants and fields, which will significantly reduce the water bill.

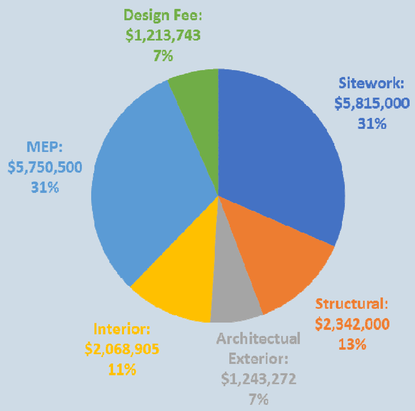
Schedule Gantt Chart

This Gantt Chart is used to show the schedule. It is an estimation for a time table which is used to keeping the build and workers on the right track. The total amount of time that it would take to complete the school is 11 months.



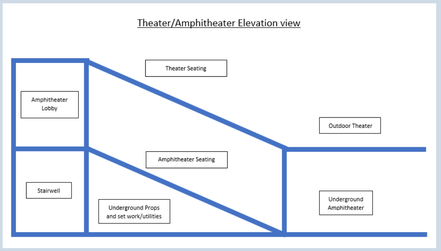
Cost Estimate

$18.5 Million



Engineering

Pioneer Academy features a partially underground theater supported by columns and 36x60 inch beams spanning 60 feet. These beams are upturned on an artificial hill with soil and grass.
All three buildings are concrete structures and incorporate tilt walls where applicable. The floorplan is translated upward to maintain structural continuity in the main building.



We estimated about 240 parking spots for the amount of staff, driving students, and visitors that our school can accommodate. Using the municipal code of Denver we found that we need a total square-footage of 54,000 sq ft for parking

Pioneer Academy

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