adaptive learning center

horseshoe park environmental learning center estes park, colorado

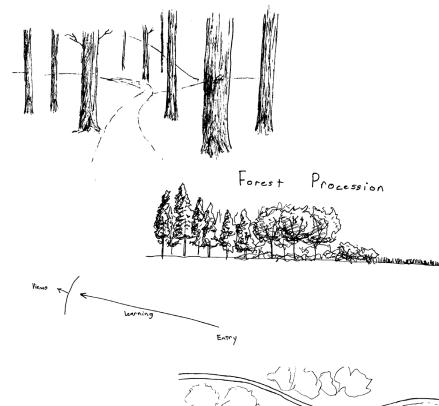


the idea

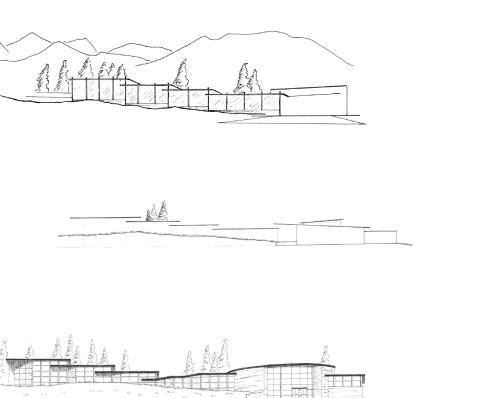
The Horseshoe Park Environmental Learning Center is a place that seeks to educate visitors to Rocky Mountain National Park. Its primary purpose is to examine the changing ecosystems of the region and explore how we can deal with this altered landscape.

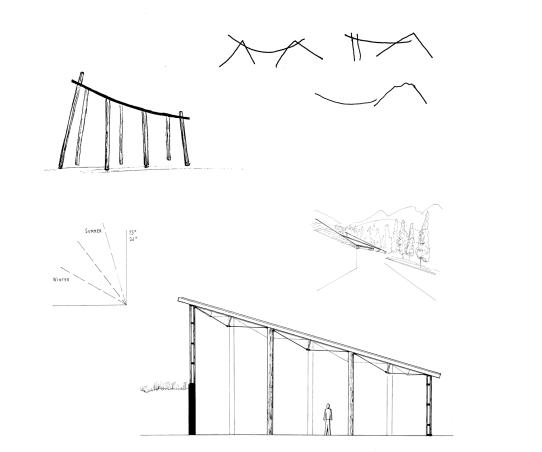
Its design was inspired by the experience of walking down a trail through a pine forest. A meandering path that moves gracefully through a vertical landscape with the topography. It is a design that seeks to adapt to the natural environment surrounding it.













site design

The learning center adapts to the site's existing charateristics in a number of ways. Its location on the site takes full advantage of the open space to the south of the center, allowing for unobstructed sunlight throughout the year for daylighting and passive heat. Utilizing the topography of the site, the learning center cuts into the hill to minimize its visual impact on this sensitive site. Finally, it exploits beautiful mountain views to the northwest of the site.

natural and historical architecture

The Horseshoe Park ELC and its design can relate directly to much of the sustainable and natural architecture that the National Park Service "Rustic" style abides by. Using natural, local materials and building techniques that align the rest of the park's historic architecture, this modern structure fits in with local styles while having its own identity.







sustainability

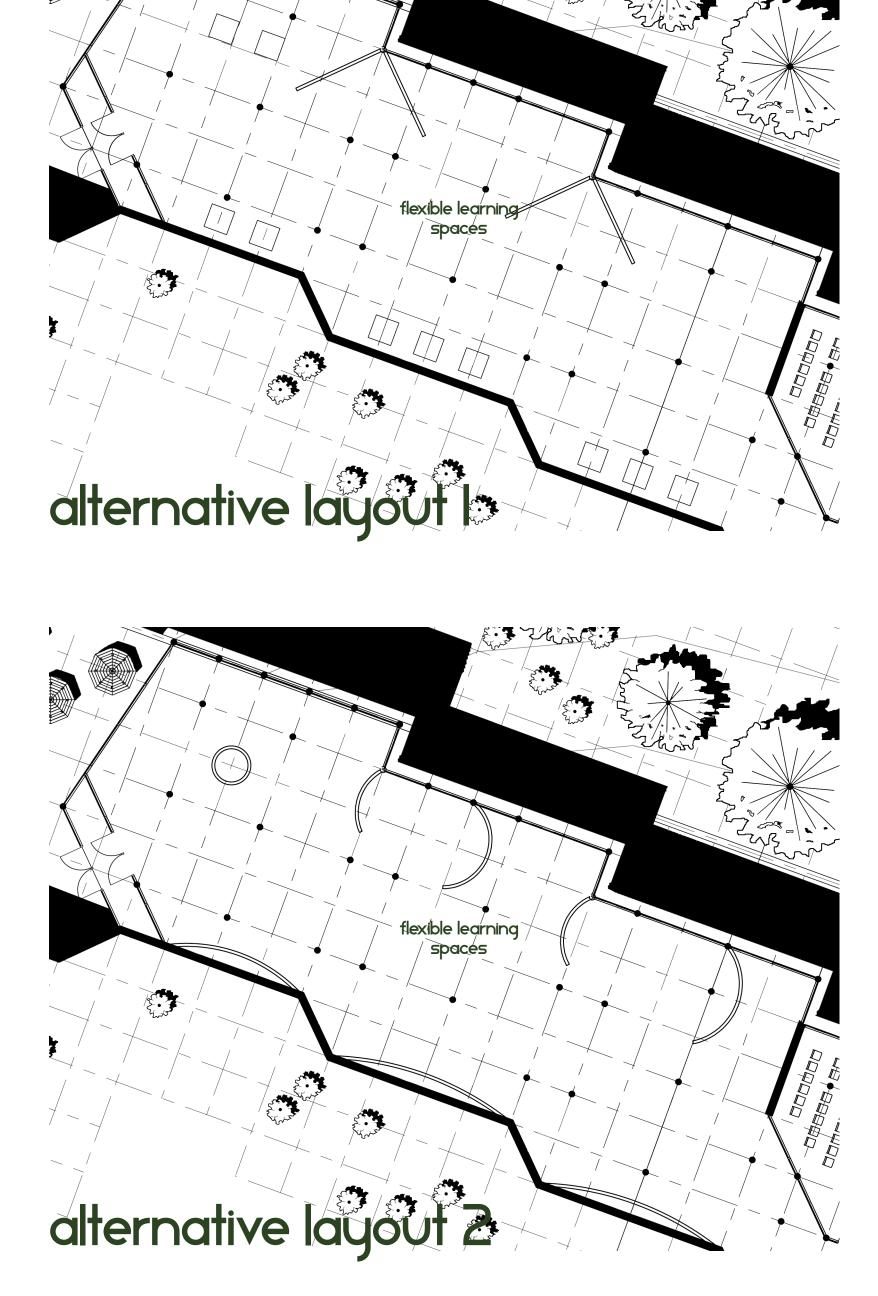
The center focuses on sustainability in a number of ways. Most of the building's materials and structures are from the site and nearby locations. All of the wood components of the structure would be collected locally outside the park, using beetle-killed lodgepole pine that would otherwise rot or be burned. Much of the rammed earth structure would come directly from the site and its excavation during the building process, reusing resources. The center would also implement single stream recycling to reduce waste once the building is in use.

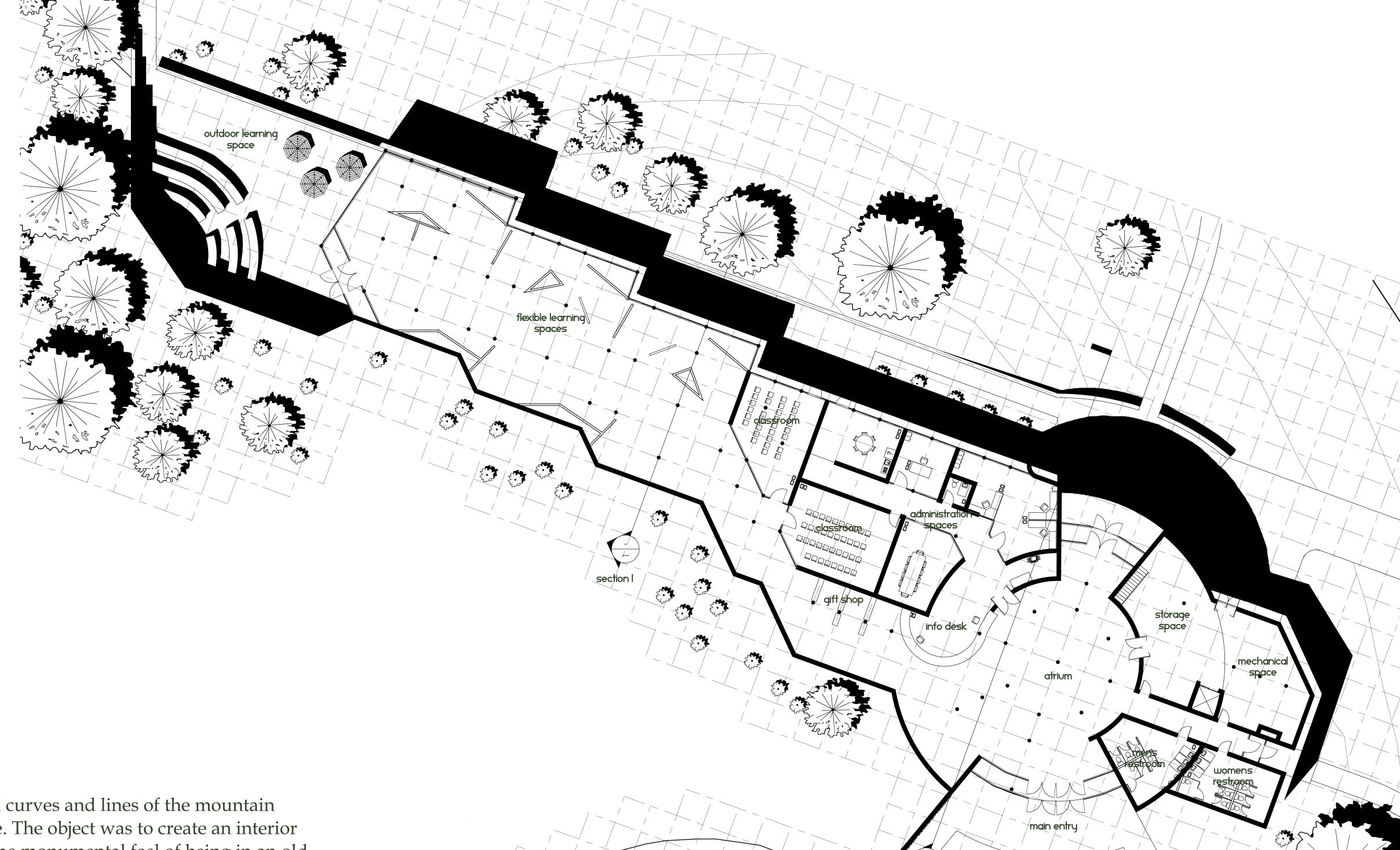
Water is a large concern in Colorado and the building seeks to mitigate its needs utilizing several strategies. The center has a rainwater collection system on much of its roof surface. The site is xeriscaped with native species to reduce runoff and eliminate water demands. Low flow toilets and faucets would reduce water demands even further. Finally, the building's solar orientaion and passive systems will also reduce energy needs to a minimum. All of these qualities make the center an excellent candidate for future LEED certification.

environmental systems

The center utilizes both active and passive systems for it environmental systems. The solar orientation satisfies most of the building's lighting needs and supplements its heating system. An open floor plan and windows offer ventilation throughout the structure. Active heating, ventilation, and air conditioning systems would run primarily through a utilitarian basement below much of the structure to venting locations along the exterior walls. These active systems would only be used as needed.





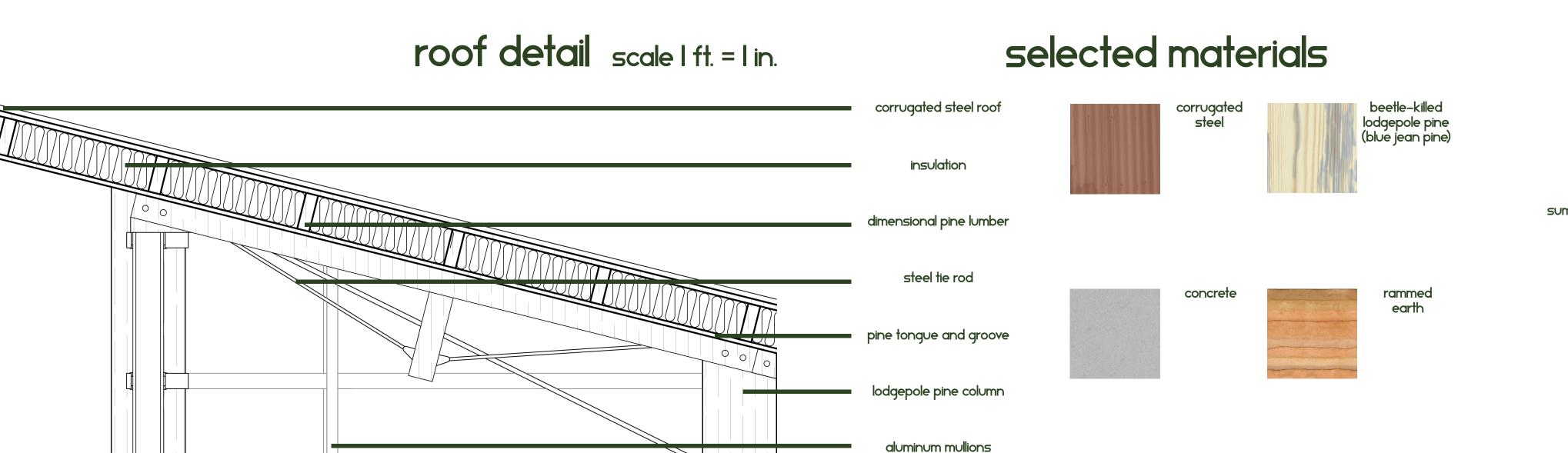


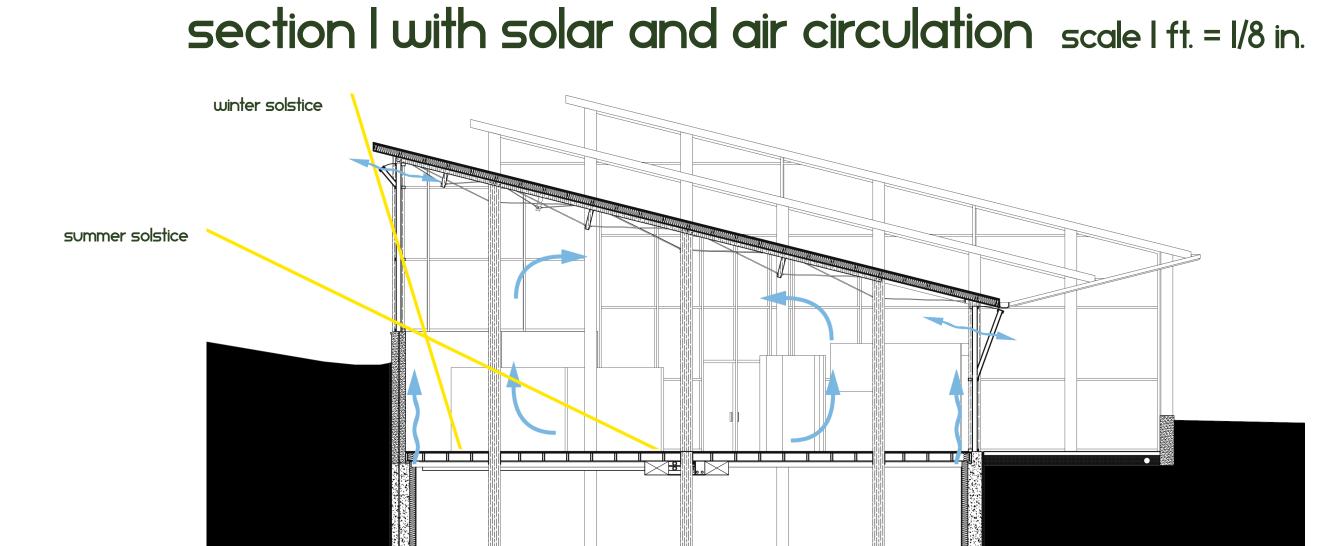
form and spaces

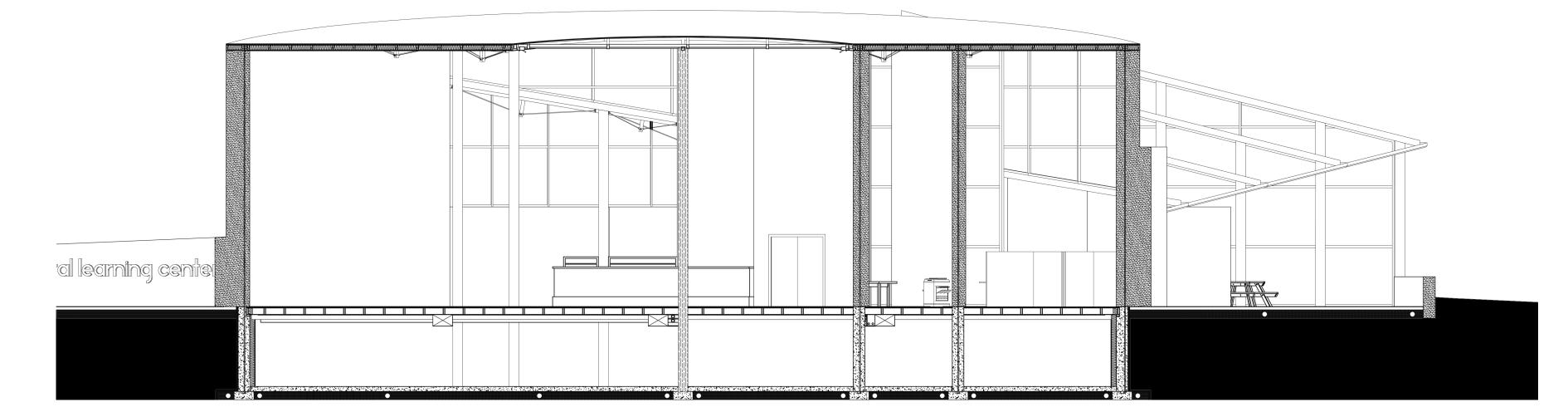
The Horseshoe Park ELC takes form from the inspirational curves and lines of the mountain landscape as well as the vertical lines of the lodegpole pine. The object was to create an interior space that connected with the exterior world and created the monumental feel of being in an old growth forest. At the same time, creating a subdued form that would not take away from the natural environment was also important.

Spaces were designed by fuction and proximity to the entrance. Functions primarily break down between administration, support, public, and learning spaces and are located in the order of use. Heavily used spaces are primarily around the main atrium while the learning spaces exist beyond the core of the building. Its open learning area allows for the flexibility to alter the exhibits and the experience of the Horseshoe Park ELC to the client's wishes.

Movement emerges from following the natural intersection of nearby trails focusing on the atrium as their junction. Spaces fall around this intersection of the exterior and interior environment and enhance them rather than obstruct them.







structural systems

section 2 scale | ft. = 1/8 in.

The Horseshoe Park ELC for the most part is a post and beam timber structure based on an 8 ft. grid to simplify construction. Rammed earth, load-bearing walls also support much of the central atrium space and support areas of the building. All of this rests on a concrete foundation.

One of the main components of the structural design was that it was necessary to have an open and light structure that allowed for daylighting and views of the surrounding area. Curtain walls envelope most of the building and allow for a very free and open space that reminds one of the connection they have to the outdoor environment.



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