

FRAMEWORKS VERTICAL LEARNING STUDIO

Social learning or social cognitive theory suggests that learning occurs in a group or social context through observation, imitation, and modeling¹. Frameworks vertical studio is designed to maximize learning in a flexible space which houses both collaborative learning and breakaway opportunities. Studies show direct links between a school's environment and student motivation, attention and information retention. The aspects of the school environment studied included daylighting, noise levels, indoor air quality, views, classroom density, temperature, lighting, color choice, seating arrangement and privacy; all had an impact on students. The Frameworks studio takes into consideration all of these factors to become a place that breaks free of the ordinary classroom, and, instead, becomes a supportive space for collaborative learning among students as well as its local community. Students vary in their preferred approaches to learning and work styles: one student may prefer to work in a quiet space with no distractions, whereas another might prefer to leave on the television in the background. To accommodate this variety of learning styles, the studio offers a variety of meeting spaces – private conference and meeting rooms as well as large open spaces, all with tables that can be easily reconfigured. The studio also recognizes the many cognitive benefits of nature and the outdoors, and is designed with biophilic elements as well as aesthetic representations of the outdoors. The ground floor also acts as a functioning example to the community – a showroom – of possible sustainable solutions in an interior space.

Galena Park, Texas is a small community with large health challenges and increasing environmental concerns. Galena Park is located on the north side of the Houston Ship Channel, which serves the Port of Houston, one of the largest and busiest ports in the nation.²

Because of its port location, the residents of Galena Park face many environmental problems: poor housing, heavy traffic congestion, toxic chemicals, air pollution and increasing temperatures due to the climate change that much of Texas is experiencing. In Texas, the summer of 2011 was 5.2 degrees Fahrenheit hotter than normal, with more than 90 days of 100-plus degrees in parts of the state.³ Risky Business, a watch group organization, reports that Texas will be one of the states most negatively impacted by climate change by mid-century absent any changes, with particular areas - such as Galena Park - experiencing the most devastation. Findings in a study predict that by 2050,

the number of extremely hot days per year – with temperatures exceeding 95 degrees- will more than double, from an average of 43 to 106.⁴ Twenty-two percent of families in Galena Park live below the poverty line, more than twice the national percentage.⁵ Increased use of cooling systems due to extreme heat is becoming progressively more expensive for residents, as well as contributing to the excessive energy consumption that cause negative global effects. Students from the University of Houston, through the Framework's vertical learning studio, will work with community homeowners to help solve their housing problems related to the high heat climate, and to educate them on sustainable design solutions that increase air quality and help naturally cool their homes, creating a home that consumes less energy while maintaining a conventional aesthetic.



Green dyed cork is used to give a 'park' feel to the upstairs studio area.

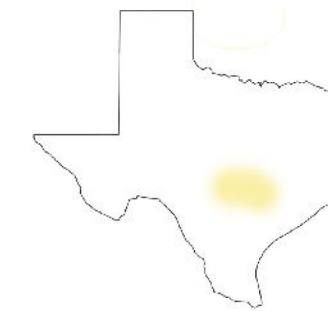
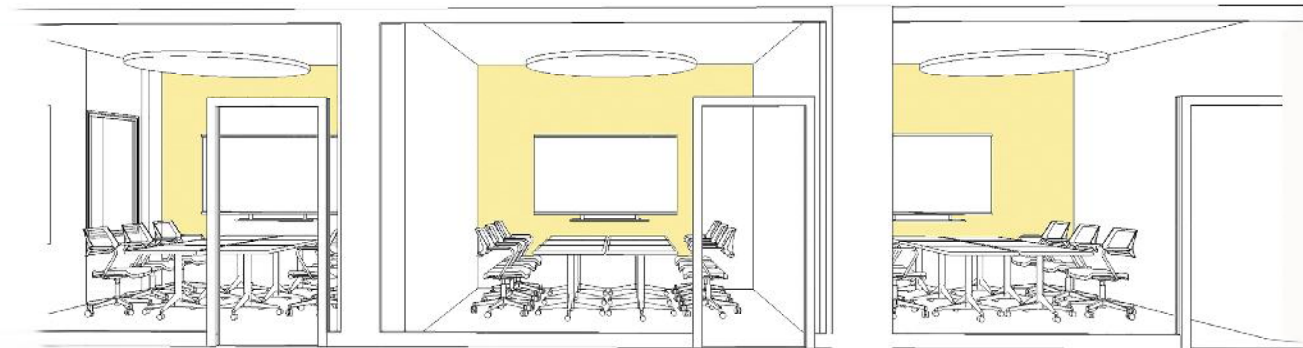


Photo: James Dillard



Photo: Pat Sullivan / Associated Press

The color yellow is said to help promote creativity. Yellow is used as wall paint color on the upper floor collaboration rooms, and as an accent in the 'park' area.



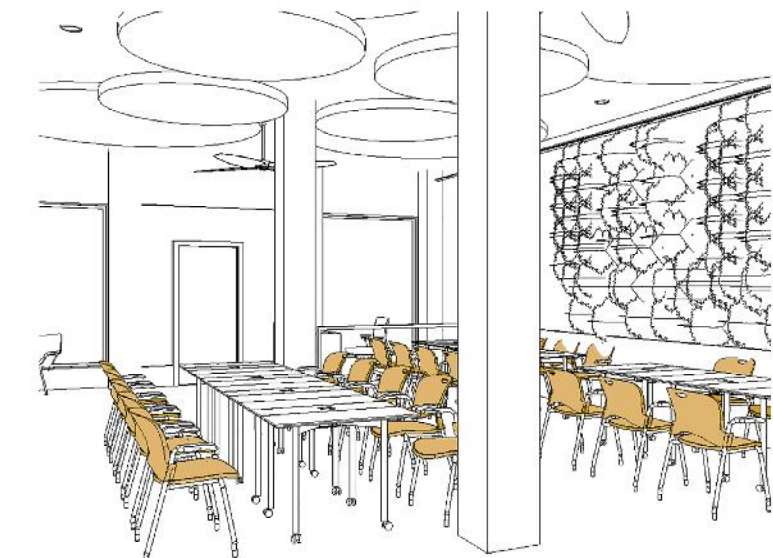
Collaboration rooms



Barrisol custom acoustical ceiling tile. Canvas wrapping provides additional acoustical properties -much needed with the use of stone flooring - while creating a pleasant, crisp diffused lighting option for the interior.

Ceiling fans help HVAC system to run more efficiently, as well as provide a pleasing breeze much like the outdoors. Ceiling fans are a low cost option for home owners.

Light shelf placed above eye-level helps to reflect incoming light up towards the ceiling, creating good ambient light and reducing glare and excessive heat gain in the interior. Light shelf is on both interior and exterior, on both the ground floor and the top floor.



1. Peterson, M., & Tober, B. (2014). Institutionalizing the Vertical Studio: Curriculum, Pedagogy, and the Logistics of Core Classes with Mixed-Level Students. In *Connecting Dots: Research, Education Practice* (pp. 138-144). Cincinnati, Ohio. 2. Trade Statistics | The Port of Houston Authority. (n.d.). Retrieved December 20, 2015, from <http://www.portofhouston.com/business-development/trade-development-and-marketing/trade-statistics/> 3. Galena Park Monitoring Report. (n.d.). 4. Collier, K. (2015, July 28). Texas Facing Major Climate Change Impacts, Study Finds. *The Texas Tribune*. 5. Galena Park Monitoring Report. (n.d.).



1. Stacking Chair
 Lightweight chair (9.5 pounds). Polypropylene seat and back for comfort, flexible give. Holes in material dissipates moisture and heat, keeping body cool.



2. Conference Table
 Casters for easy mobility and reconfiguration. Foldable tables allow for maximum floor space when not in use, provide easy storage. Built in electrical outlet for easy wire management.



3. Interactive Whiteboard
 Heavy-duty locking casters allow easy mobility. Interactive access to internet and software connection allows for meetings / presentations.



4. Table
 Casters for easy mobility and reconfiguration. Adjustable height. Constructed with 60% recycled materials



5. Workchair
 Casters for easy mobility. Ergonomic design for increased comfort. Chair is 99% recyclable



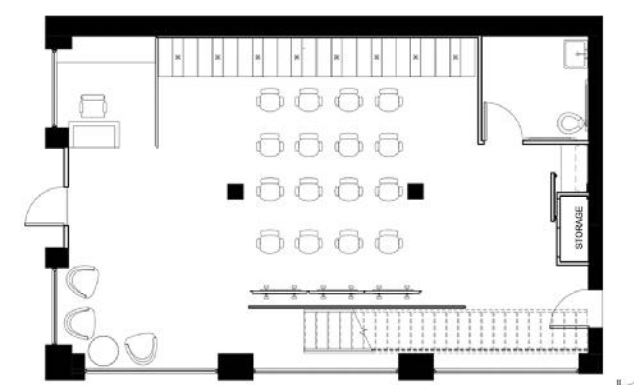
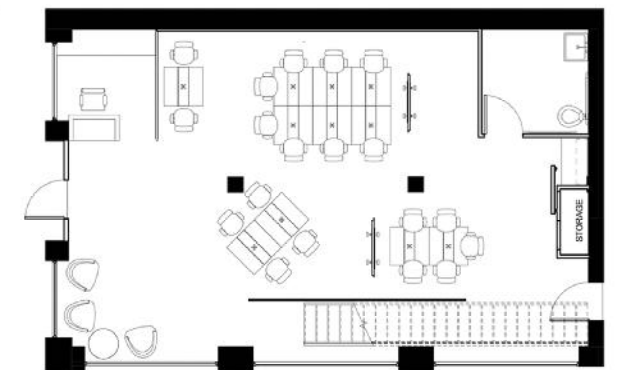
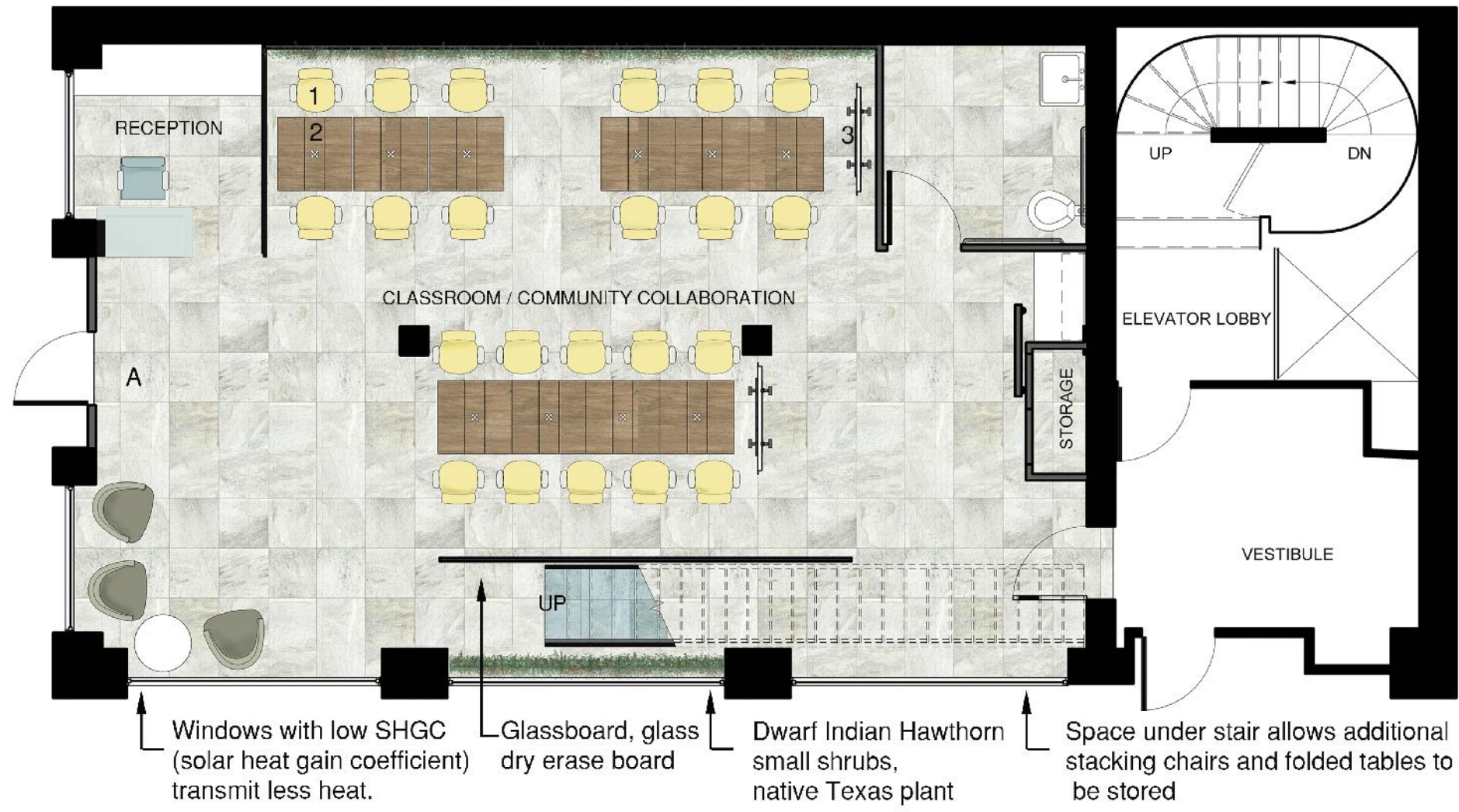
A. Slate Tile Flooring
 24" x 24" slate tile. Stone flooring helps keep interior spaces cool. Slate can be installed without toxic adhesives. Highly durable. Easily cleaned.



B. Cork Tile Flooring (grey, green)
 24" x 24" Cork Tile Flooring. Rapidly renewable material. Soft under foot. Good acoustical properties, helps prevent sound transmission.

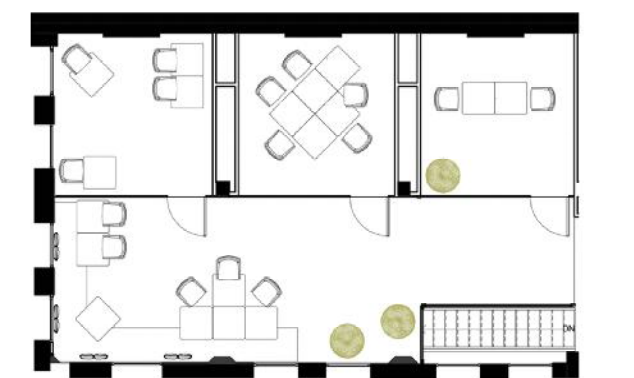
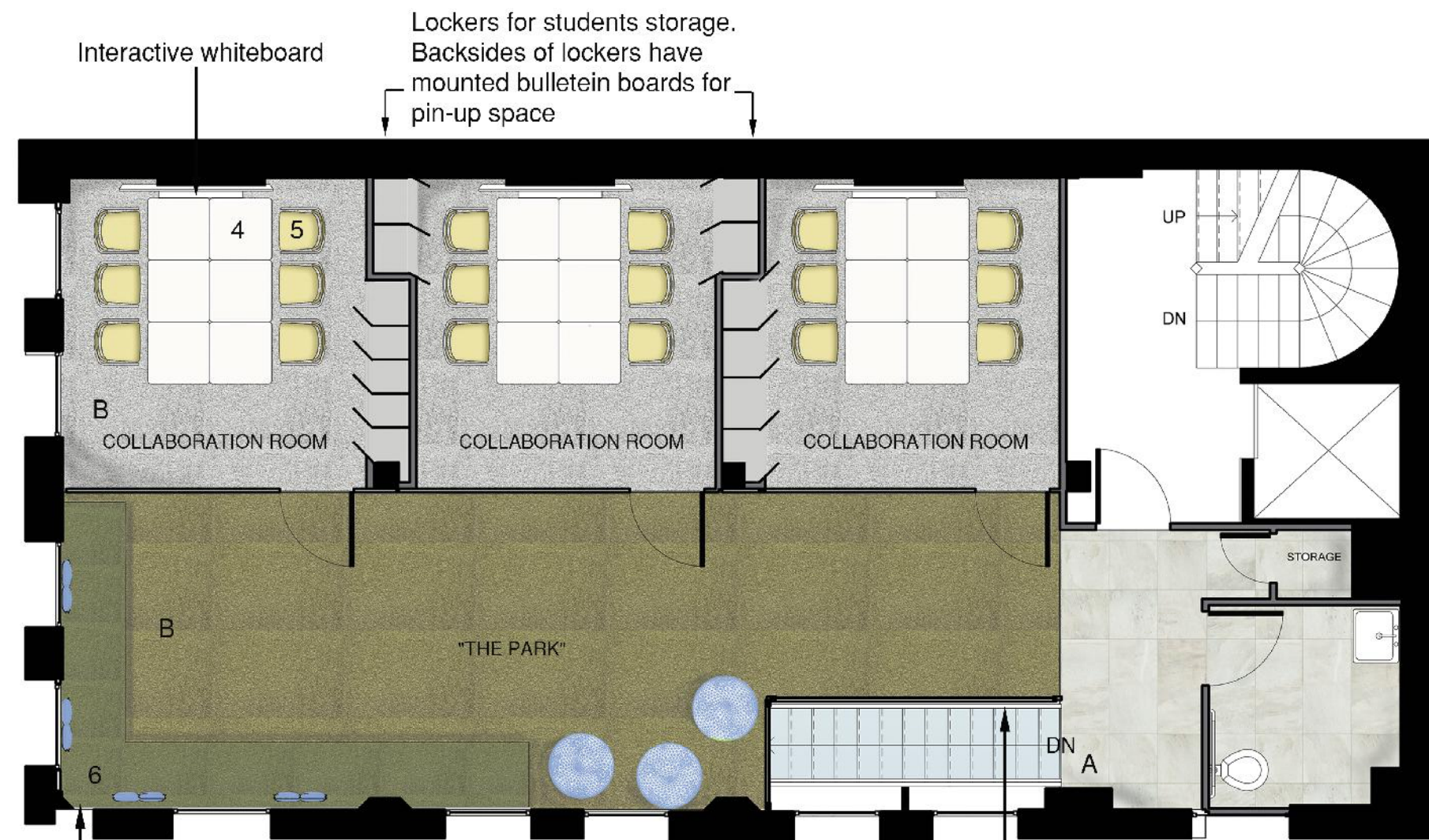


Nedlaw living wall with Heavenly Bamboo and Indica Azalea plants. Both plants are native to the region, plants help to clean and purify inside air, much needed in the Galena Park area. Indoor plants also provide cognitive and productivity benefits.



GROUND FLOOR

Because of the buildings location, circulation was placed along the south side windows. Texas temperatures are very hot, southern sunlight exposure can become uncomfortable to sit under for long periods of time. The sun's heat and amount of light can be an issue for electronics causing excessive glare, and heat damage. In this studio, main work spaces are located along the north wall, where it will receive good natural lighting and no glare, reducing the need for blocking sunlight and turning on overhead lights. "Park like" seating options along the south wall on the top floor provide students the option to study / work under the sun for periods of time if they wish.



TOP FLOOR

Bench seating for multiple comfort / seating options. Storage provided beneath.
 Windows with low SHGC (solar heat gain coefficient) transmit less heat.
 Bean bag chairs for multiple comfort / seating options
 Glassboard, glass dry erase board

