Climate Zone:
1B—Very Hot and Dry

- Strongest Winds to the West
- Highest Temperatures 110°F
- Lowest Temperatures 50°F

Passive Design Strategies:
- Sun Shading of Windows
- High Thermal Mass
- High Thermal Mass Night Flushed
- Direct Evaporative Cooling
- Two-Stage Evaporative Cooling
- Natural Ventilation Cooling

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Systems, Sites and Building, Fall 2014
Language

The official language of Pakistan is Urdu. This is a combination language of Arabic, Persian, and Turkish. This language is the same as Hindi when spoken, but the written form is different. Although Urdu is the official language, most people speak English making it the informal official language.

Religion

95% of the population in Pakistan are Muslim; however, there are also small groups of Buddhists, Christians, Parsis, and Hindus. Particularly in the city of Lahore though Hinduism is practiced by about 40% of the population. The Hindu Festival of Lights, Diwali, is held in the Shalimar Gardens of Lahore. During this festival, the gardens are filled with multicolored lights and folk music and dances are performed.

History

Lahore was the cultural capital of the Mogul Empire. The city was known for its glorious palaces, gardens, and mosques. Currently it is still the second largest city in Pakistan and is the capital of the Punjab region of the country.
- The Integrated Master Plan for Lahore, the second largest city in Pakistan, indicates an express need for more sustainable building practices.
- Programs set forth by the master plan are intentionally general in character to allow for flexibility.
- Among the primary concerns are the "untreated disposal of industrial effluents in water bodies, lack of solid waste management, increasing traffic of motor vehicles and mushroom growth of slum as well as squatter settlements" (Haydar, 311).
- Priority given to "improvement of water supply, drainage, sewerage, and solid waste management systems (Haydar, 312)
- In the past 5 years, Lahore has begun to invest in its solid waste management. Lacking both controlled and semi-controlled waste disposal facility in Lahore. No official recycling system. (Masood, 834)
- In reaction to the high degree of solar radiation, a study conducted in Lahore calculated the optimal orientation for houses in the area. South-west was indicated as the best orientation for lowering additional heating or cooling. (Arif, 292)
- Solar radiation in winter is greatest in the southern orientation.
- In summer, west orientation receives the most exposure.
- While present roofing practices hardly consider climate conditions, the Pakistan Journal of Science has published articles exploring more sustainable and cost effective roofing types.
- Limestone and White concrete were proven to be a low cost and highly effective form of roofing insulation. Reflected sun’s rays.
Badshahi Mosque
Location: Lahore, Pakistan
Completed: 1673
Patron: Sixth Mughal Emperor Aurangzeb

Formal Qualities:
- Exemplary specimen of Mughal architecture
- Traditional material palate of red sandstone and white marble
- Details such as bulbous domes, minarets, iwans, chatras, pointed arches, and organic motifs are all consistent with traditional forms

Relation to Site:
- Oriented towards Mecca
- Mild winters allow for open-air prayer courtyard. However, exposed to the sun in the summer
- Walls may mitigate the harsher winds. Openness allows for ventilation
- Arcade surrounding the main prayer hall provides shade and ventilation, cooling the interior.
- Stone may serve as a thermal mass
- Pool at the center of the courtyard provides evaporative cooling.

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The New School was designed by SRDW Architects in 2009. It was a model school for Beaconhouse to begin moving towards a more sustainable and energy efficient system.

The school is oriented so that the longest side of the building captures the strongest winds that come in from the west and maximizes cross ventilation through the school. There are multiple green rooftops that keep the building cooler without use of mechanical systems and these spaces double as outdoor classrooms for the students.

There is a center courtyard which acts as a vertical ventilation shaft and each classroom has direct access to this area.


“Culture of Pakistan.” Countries and Their Cultures. Web. 11 Nov. 2014.

Climate Consultant


Google Earth


“Urdu.” Project GOLD @ NCSU. Web. 13 Nov. 2014.

Local Design Principles for Global Construction

U.S. Department of State Overseas Building Office
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Lahore, Pakistan

Work Cited

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