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## Beginning With Site In Architectural Education.

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## Beginning with Site in Architectural Education

SHANNON CHANCE  
Hampton University

"Buildings do significant environmental damage, both locally and globally. ...almost 40% of the 7.5 billion tons of raw materials annually extracted from the earth are transformed into the concrete, steel, sheetrock, glass, rubber, and other elements that make our buildings. One quarter of our wood harvest is used for construction. And buildings consume about 40% of the world's energy production and produce 40% of the sulfur dioxide and nitrogen oxides that cause acid rain and smog." (Talarico, 202.)

Humans are quickly consuming materials, energy, and land - and producing tremendous waste - through the construction, operation, maintenance, retrofit, and demolition of buildings. Architects' choices directly influence the future health and prosperity of humans and of human habitats. Since society has charged architects with leading the building process, architects are ethically obligated to find effective ways to manage consumption and mitigate construction-related waste. U.S. architecture schools have been particularly slow to address environmental issues, as evidenced by the fall 2004 *Laboratories for the 21st Century* sustainable design competition was open only to North American architecture students:

"It is worth noting that five of the eight winning and honorable-mention teams came from Canadian schools, including two of the three winners. Even the first-prize submission was designed by a student from Virginia Tech who was educated primarily in Germany. Do these results say anything about the curricula and attitudes of U.S. programs and students? What would have happened if the competition were open to students from outside the United States and Canada?" (Monti, 3.)

Our profession cannot effectively serve humanity's needs by treating basic environmental issues superfluously. Those of us who educate tomorrow's architects must move ecology from the periphery. We must prepare our students to address a mounting consumption crisis, in order to produce buildings that more effectively use nature's resources.



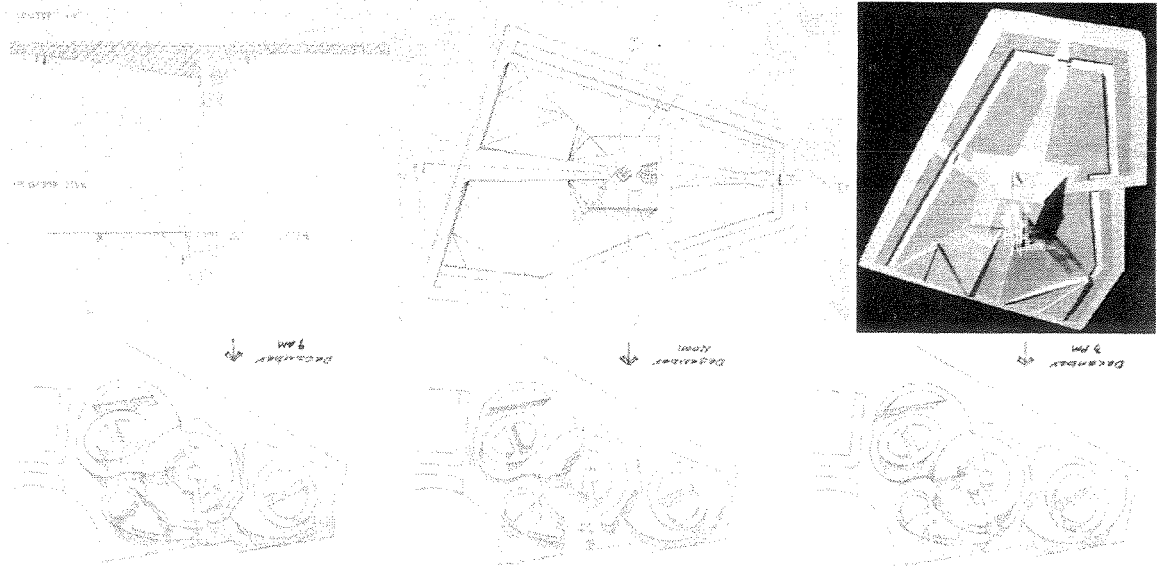
Figure 1. Hampton University Architecture – site and environment field trips.

Hampton University has implemented a number of curricular changes that emphasize "site" and "environment" throughout its architecture degree program. Ecological issues now form the basis of the second year *Design Studio*, and re-emerge throughout design and support courses in subsequent years. Students begin second year with co-requisite *Architectural Ecology* and *Basic Architectural and Environmental Design* courses while they are also studying history, representation, and physics. The architecture courses are carefully cross referenced, with the

This paper describes the *Studio* projects, and then explains how assignments and presentations in *Design Studio* and *Architectural Ecology* were synchronized to reinforce student ability and understanding. All activities and projects in the *Studio-Ecology* component emphasized site design and environmental conservation issues. Assignments required students to analyze, consider, and design with regard to topography, sun light, climate, natural elements, perceptual site factors, and eventually built context and circulation.

Their first set of *Studio-Ecology* projects (of three conducted fall semester), stressed topography. Students used the basic site principles covered in *Architectural Ecology* to analyze and re-grade a site on their campus waterfront. They were directed to treat the site as solid, and to carve and shape it to receive a small tectonic structure - in this case a tree house originally designed for a Minnesota exhibition that would theoretically be relocated to Virginia.

Figure 2. Shadow studied produced in *Architectural Ecology* like these by Bruce Firestone, informed the *Studio* design projects, like this one by Lucia Kapinska (below).



While the first year Pre-Architecture program concentrates on basic design, drawing, and visualization skills, students officially enter the Master of Architecture degree program in the fall of their second year. Their first architecture studio (*Basic Architectural and Environmental Design I*) integrates the content and coursework from the co-requisite *Architectural Ecology* course, and successful completion of both *Studio* and *Ecology* is mandatory for continuing into the next studio (*Basic Architectural and Environmental Design II*). This first "M.Arch." semester acculturates students to the rigors of the architecture curriculum while developing their spatial understanding through projects that grow out of site context. Completing *Design Studio* and *Architectural Ecology* alongside *History of Architecture I*, *Theory and Practices of Representation*, and *Physics* requires students to deal with science, design, history, and theory (and all four architecture courses touch on all of these modes of thinking). Pedagogically, cross-referencing course content strengthens student skill and helps us meet an ambitious set of goals in one semester.

Where design grows from "site" and "environment." This paper presents results of the co-requisite *Studio-Ecology* courses conducted in the fall of 2004, our pilot semester.

Hampton University has instituted a new five-and-a-half-year Master of Architecture curriculum. This course structure places basic site issues at the forefront of design decision-making. In short, *Studio-Ecology* set helping steer discussion and assignments in the other architecture courses.

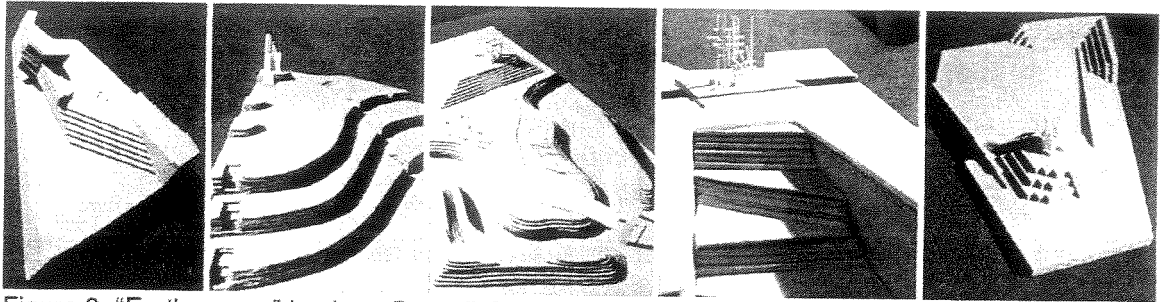


Figure 3. "Earthscaapes" by Jerry Russell, Tiana Baskerville, Jennifer Kelley, Tyshawna Spell, and Justin Harris referenced content from *Architectural History* as well as *Architectural Ecology*.

The existing site, located along the campus' waterfront, is composed of clay fill retained by seawalls. After measuring and drawing the outline of the existing footprint, students explored telluric concepts by modeling and "carving" the site. They were encouraged to reference lessons on ancient carved temples and tombs from *Architectural History* class. Then, the students were directed to design their own new "tree house" or "temple" to reflect their new topography. They were allowed a very limited kit of parts for the small tectonic structure. In *Architectural Ecology*, students produced Sun Angle Studies using the contour models they had developed in *Studio*.

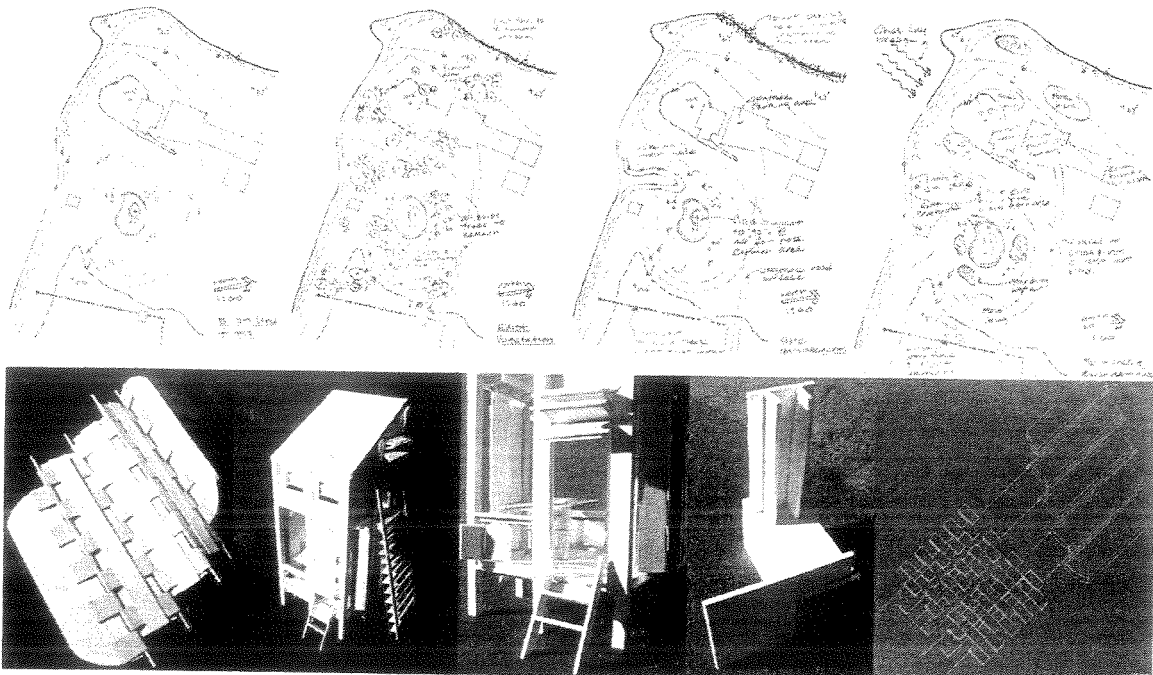


Figure 4. The second project involved a comprehensive Site Analysis Report in *Architectural Ecology*. Diagrams are by Bruce Firestone, with a "Cabin for an Architect" by Chela Williams.

With increasing respect for climate, topography, and life cycles, students began their second *Studio* design project through two parallel activities: a joint study conducted concurrently in *Representation* and *Studio* courses, and a formal Site Analysis Report conducted in *Ecology* and *Studio* courses. The project was located on a campus annex property, again on the waterfront. First, students analyzed the overall waterfront site. Later, they each selected, staked,

and diagrammed a small plot that would serve as their individual building site. Each student was allowed a site with a maximum 164-foot perimeter, and was required to “touch the ground lightly” and to orient each new structure to best reflect and utilize existing site conditions.

Instructors presented a range of precedents, including traditional Korean houses, housing projects from the Rural Studio, and Anne Cline’s *A Hut of One’s Own*. In *Representation* class, students analyzed and drew other precedent cabins, and also modeled and drew a variety of hinge connections. Finally, each student designed a small wood frame structure that integrated their found hinges as well as object reclaimed from the site. Each cabin provided sleeping and drafting space within a maximum 64 square footprint, utilizing available light, shade, wind, topography, and views.

The third and final project of the semester was sited in the courtyard of a 110-year-old building adjacent to our architecture building. The project program required students to design using the concept of penetrating existing layers in order to create a series of outdoor gathering spaces for students, staff, and faculty. Through *Studio* and *Representation* courses, student teams modeled the historic building, and then each student investigated the courtyard’s existing geometries using physical and Form-Z models, and PhotoShop layering tools. Both courses emphasized structural grid systems and the history of perspective representation.

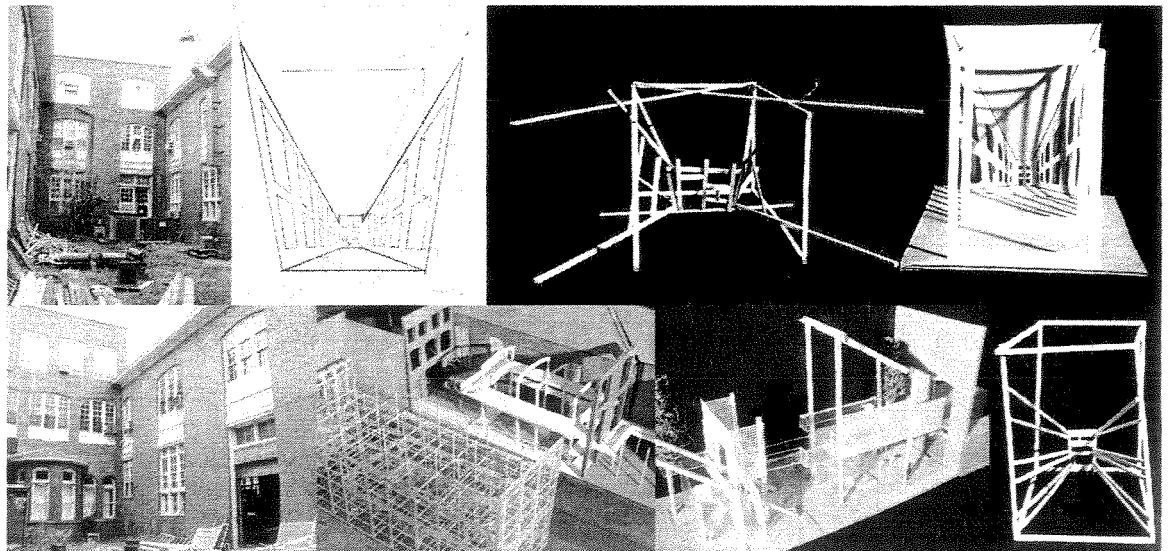


Figure 5. Courtyard designs (bottom center) by Deborah Deck-Suarez and Taneisha Lockwood reflect coursework on perspective construction from *Theory and Practices of Representation*.

Overall, the *Design Studio* emphasized each building site as a physical place with its own unique properties. Students discovered qualities of the natural environment that affect architecture, and integrated site characteristics into various design projects by utilizing available sunlight, wind, water, earth and stone, construction materials, and other natural resources. The design projects became vehicles for applying “science” from *Ecology* and *Physics* to the “art” of building. The projects required students to develop processes for integrating “technical” site data into design. To better understand “design process,” we read and discussed chapters from Simon Unwin’s *Analyzing Architecture* and Eiler Steen Rasmussen’s *Experiencing Architecture*. Readings and exercises for *Theory and Practices of Representation* were selected to enhance understanding of *Design Studio* issues. In addition, the first studio project continually referenced ancient artifacts that the students were studying in *History of Architecture*.

All three *Architectural Ecology* projects tied directly to *Design Studio* projects, and continually emphasized diagramming as a tool for learning and communicating information about site. The *Architectural Ecology* class provided students with technical, scientific, and theoretical knowledge and techniques necessary to design within the three *Design Studio* project sites. *Architectural Ecology* course lectures were organized around the book *Site Design* by H. Paul Wood (a study guide for the Architectural Registration Exam), and described aspects of topography, climate, natural elements, circulation, legal and economic factors, and perceptual factors. The instructor assessed student understanding of technical issues through examination and the three projects discussed earlier - a Sun Angle Study, a comprehensive Site Analysis Report, and a Summary of Internet Research about a sustainable technique, material, or product.

While the first half of the *Ecology* semester was entirely dedicated to building technical understanding (to directly inform the students' *Design Studio* projects), the second half of the course concentrated on ideas. In fact, students had been fairly enthusiastic about learning the technical aspect of site design following a series of three warm-up reading discussions. J.B. Jackson's "American Public Space," Kevin Lynch's "Waste of Place," and Ian McHarg's "On Values" enticed students to invest the time to learn the drier, more technical content.

Delving into theory for the second half of the semester, students poured over William McDonough and Michael Braungart's book *Cradle to Cradle: Remaking the Way We Make Things* in the *Architectural Ecology* course. *Ecology* culminated with discussion of *Sustainable Architecture White Papers* (Wendy Talarico's "Taking the Elective out of Architectural Education," Harry Gordon's "Sustainable Design Goes Mainstream," and Patty Noonan and Jon Vogel "High Performance Building and Affordable Housing") and half of the Canadian book *Our Ecological Footprint: Reducing Human Impact on the Earth* by Mathis Wackernagel and William Rees.

Readings and class discussion explored sustainability theory, investigated how humans conceptualize and relate to the natural environment. Students submitted written questions, generated from the assigned readings, prior to each class. The questions formed the basis of class discussions. This pedagogical technique of individual inquiry followed by group discussion effectively prompted critical thinking. These discussions proved insightful and popular, as reflected in course evaluations and strong participation. The student-generated discussion effectively engaged students to enthusiastically confront and redefine their values based on new information and ideas presented in the readings. Students actively determined the relevance of new information in their own lives, rooted the ideas in their own reality, and built personal appreciation and a sense of responsibility for preserving our natural habitat.

The faculty and students involved in this integrated curriculum remain intent on producing design that grows from local context and enhances the natural, social, and built environment. With the success of this pilot program, Hampton University's Department of Architecture is effectively developing its design identity around issues of urban and environmental sustainability. Addressing "site" and "environment" fits well with our department's socially-oriented mission, which advocates leadership and design, to improve urban conditions within local communities while respecting our region's most dominant geographic feature, its water's edge. Future iterations of this program will incorporate more service learning and collaboration. Our student body responds enthusiastically to our service mission, and eagerly links issues of social justice with sustainable design. They are further motivated by learning that:

"Low income populations have a great deal to gain from the use of green building techniques. In reducing utility bills by as much as 35%, these techniques can make a real difference in family budgets. Similarly, the positive health benefits of green building can greatly improve their quality of life.... There are many low-cost techniques that can be used to make a development project more environmentally friendly. These include choosing a site that is transit accessible; reusing existing buildings or building

components; orienting buildings to maximize their southern exposure; and clustering buildings to minimize infrastructure and damage to the ecosystem.” (Noonan, 129, 132.)

Hampton University’s Department of Architecture is committed to developing student ability to create environmentally sustainability design. To reach this goal, we have focusing our beginning *Design Studios* and support courses around mastering “pre-design” and “site design” issues. Our pilot semester provided a sense of accomplishment, with a plan, and with renewed hope for the future. As second year student Quandra Gray stated at the end of the *Ecology* course: “The most important thing I learned in this class is that I may be able to do something to save the earth. Before I came to this class, I thought I would have no choice as an architect but to do as the rest of the architects, and that is to build, build, build, without any consciousness about consuming. Learning about sustainability has definitely informed me that I can make good architecture without destroying our planet.”

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## Hampton University Brings Color to Architecture

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Shannon Chance

Hampton University, a private historically black institution in southeast Virginia, has a distinguished history of diversifying the architecture profession. Prior to 1968, women who wanted to study architecture in the state of Virginia had just one choice, Hampton University. In fact, Hampton enrolled women in architecture decades before Virginia Tech and the University of Virginia opened their doors to female students. Hampton University also plays a critical role in diversifying the profession racially, having produced the second highest number of licensed African-American architects of any program in the country.

The U.S. desperately needs more architectural involvement by African-Americans, but the profession generally fails to attract and retain talented black students. Among practitioners, African-Americans comprise just 1% of the AIA, while constituting roughly 13% of the U.S. general population. When we consider the tremendous contributions African-Americans have made in shaping distinctly American music, literature, painting, quilting, and sculpture, we may understand how our country's architectural design has suffered from participation by so few Americans of African heritage.

Low visibility of architects deters many African-Americans from entering the profession. "If black students hardly ever hear of a black architect, the most promising young people are unlikely to look to architecture as a career," stated *Progressive Architecture* in December 1990. "If clients rarely see or hear of a black architect, black architects are not going to have the credibility they need."

Further impairing visibility, architectural history surveys generally overlook contributions of black architects. The *Directory of African American Architects* highlights achievements of "Joseph Francis Mangin, the principal designer of New York's City Hall; Benjamin Banneker, who assisted Pierre Charles L'Enfant in the planning of Washington D.C.; Julian Abele, who designed the Widener Library at Harvard University; and Paul Revere Williams, who designed Hollywood homes for a number of movie stars."

The *Directory* indicates that, to date, 143 African-American women have defied the odds by obtaining architectural licensure - with a total of 1,394 African-American architects registered nationally (<http://blackarch.uc.edu/>). In light of a 2002 NCARB Survey claiming 101,219 total registered architects, it seems that African-American women represent just 0.14% of registered U.S. architects.

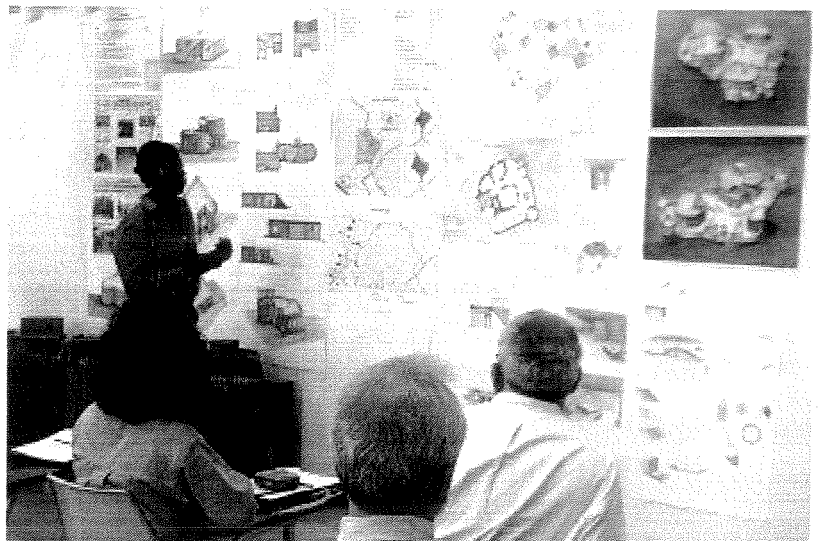


Currently, 55 of Hampton University's 135 architecture students are female; 21 of the students are white. Hampton's Architecture Department provides a challenging curriculum and supportive learning environment that attracts racially diverse women and men. In fact, the Department represents one of Hampton's most racially diverse student bodies, and was noted by the Association of Collegiate Schools of Architecture (ACSA) in 2002 as having the highest percentage of gender equality among the faculty of any North American architecture program. During 2002-03, Department Chair Bradford Grant, AIA, served as ACSA president – the first African American and the first HBCU educator to hold the presidency.

Hampton's role in promoting diversity in the profession may be as critical today as in 1868 when the University's founders established the Trade School curriculum - the roots of today's Architecture Department. The Department continues to evolve, and students entering architecture in the fall of 2004 will enroll in a new five and a half-year Master of Architecture program, which will replace the current five-year Bachelor of Architecture program.

Hampton University is one of just seven Historically Black Colleges and Universities (HBCU) in the U.S. that offers accredited architecture programs. Even today, 45% of all African-Americans studying architecture in North America's 126 accredited schools of architecture enroll in these 7 HBCUs. Roughly half of all Black licensed architects in the U.S. attended an HBCU.

HBCUs clearly offer challenging curricula that prepare students to lead. According to a 1991 publication by United States Department of Education Office for Civil Rights, "HBCUs have provided undergraduate training for 3/4 of all black persons holding a doctorate degree; 3/4 of all black officers in the armed forces; and 4/5 of all black federal judges.... More than 80% of all black Americans who received degrees in medicine and dentistry were trained at the two traditionally black institutions of medicine and dentistry.... 50% of black faculty in traditionally white research universities received their bachelor's degrees at an HBCU."



Sylvia Coffie presents her thesis "Sankofa: Aesthetics of Mud in Navrongo Architecture" (Photo by the author.)

HBCUs appeal to Black students for numerous reasons states Gloria A. Mixon in a 1995 *Academe* article. These schools “provide creditable models for aspiring Blacks to emulate,” create “psychosocially congenial settings in which Blacks can develop,” and serve as “transitional enclaves or quasi-sanctuaries through which Black students may move to the mainstream, without the damaging competition of a white majority or the dangers of many inner-city communities.” HBCUs “offer insurance against a potentially declining interest in educating Blacks,” and “are resources, economically and politically, to the communities in which they are based. In this respect, HBCUs are beneficial economically to the white community, and they also help whites politically by contributing ‘to the expansion of an informed and responsible populace.’” HBCUs “contribute to the pluralism of American education, providing a wider freedom of choice for white and Black students.” They also serve “as repositories for the Black experience” in working to “discover and preserve the Black cultural heritage.”



Institutions classified as HBCUs generally maintain an African American focus. According to Cynthia L. Frierson, their missions of social obligation reflect “a firm and strong sense of tradition and heritage.” HBCUs, like other special mission institutions, offer students “the experience of being in majority status which aids the comprehension of majority/minority status in the larger world, the provision of leadership experience, and academic support programs which are not offered at other institutions.”

In support of cultural diversity, Hampton University's Architecture Department currently enrolls students from across the United States as well as Saint Thomas, Czech Republic, and the West African countries of Ghana and Gambia. According to its mission statement “The Hampton University Department of Architecture is an accredited Architecture Program, geared toward those who desire preparation to engage in a critical practice of architecture. We believe that architectural education offers unique possibilities, which allow our students to face and lead the broad challenges confronting societies, from the level of individuals, to neighborhoods, and to nations. We are dedicated to promoting a global environmental sensitivity, and developing an ability in students to bring about important social and environmental change, especially in transitional urban areas and communities of color. The Department sets the framework for the investigation of architecture as a way of thinking about this world. We strive to provide an integration of: individual imagination with

communal responsibilities; theoretical insights with pragmatic speculations; conceptual gestures with tectonic articulation; and contemporary interpretations with histories of architecture.”

In short, architectural educators at HBCUs meet two quite distinct agendas: the mission of educating architects, and the mission of educating black students. Hampton University’s architectural pedagogy balances issues of ethnic, racial and cultural diversity in addition to the gamut of theoretical and practical topics required in the profession.

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