A PROPOSAL TO CHANGE THE DESIGN & CONSTRUCTION CULTURE OF HAITI

Haiti Built Environment Resource Center

Université d'Etat d'Haïti

January 2011

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National Institute of Building Sciences

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YCF Group, S.A.

National Organization for the Advancement of Haitians (NOAH)

Institute for Building Technology and Safety

The State University of Haiti (UEH)

Funding Organizations *(to be determined)*

Haitian American Engineering Association (ADIHA)

Witt Associates

California Polytechnic State University

OBJECTIVES

1. To establish a "Haiti Built Environment Resource Center" that will serve as a hub for education, training, research and implementation on methods to reduce the risk and damage caused by natural disasters.
2. To promote the development and adoption of National safe building standards for the design and construction of resilient buildings and infrastructure.
3. To provide technical and administrative resources for a sustainable built environment culture.
4. To provide specific support to Haitian educational institutions to reach out to the community for the improvement of design, construction and quality control; and teach by example as they rebuild their primary, secondary and higher education facilities.

SCOPE OF ACTIVITIES

TO ESTABLISH A "HAITI BUILT ENVIRONMENT RESOURCE CENTER" THAT WILL SERVE AS A HUB FOR EDUCATION, TRAINING, RESEARCH AND IMPLEMENTATION ON METHODS TO REDUCE THE RISK AND DAMAGE CAUSED BY NATURAL DISASTERS.

As Haiti rebuilds, a new building culture that recognizes the requirements for resilient buildings is critical for the establishment of a safe and sustainable country. The participating organizations propose development of a "Haiti Built Environment Resource Center." The Center will serve as the hub for programs and facilities related to building sciences and design for resilience to natural disasters.

TO PROMOTE THE DEVELOPMENT AND ADOPTION OF NATIONAL SAFE BUILDING STANDARDS FOR THE DESIGN AND CONSTRUCTION OF RESILIENT BUILDINGS AND INFRASTRUCTURE.

As the Center becomes the gathering place for construction professionals, hazards experts, and enforcement personnel from both inside and outside Haiti, it will serve as the natural home to promote development and adoption of building standards and to provide for the education and training to ensure that they are utilized and enforced.

TO PROVIDE TECHNICAL AND ADMINISTRATIVE RESOURCES FOR A SUSTAINABLE BUILT ENVIRONMENT CULTURE.

NEED TEXT

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TO PROVIDE SPECIFIC SUPPORT TO HAITIAN EDUCATIONAL INSTITUTIONS TO REACH OUT TO THE COMMUNITY FOR THE IMPROVEMENT OF DESIGN, CONSTRUCTION AND QUALITY CONTROL; AND TEACH BY EXAMPLE AS THEY REBUILD THEIR PRIMARY, SECONDARY AND HIGHER EDUCATION FACILITIES.

Schools serve as the cornerstones of communities and represent the future of the Haitian people. Assuring that these schools are resilient in the face of future disasters, while serving as potential gathering places, shelters, and educational tools, will lead to additional benefits for the community and the country. To achieve those benefits, assure consistency, and provide necessary education and training resources, the participating organizations propose development of model requirements for all school buildings within Haiti. Such requirements will help provide resilience to future natural disasters.

These model requirements will provide for the certainty and consistency necessary to stimulate rebuilding while assuring adequate control over the quality and safety of the structures.

Upon completion of the model requirements, the Ministry of Planning and the Ministry of Education will need to adopt these requirements as compulsory for the construction of school facilities. These model requirements will then become a project of the Center with long-term maintenance by Haitian experts.

To assist in their use and enforcement, training materials and curricula will be developed to accompany the requirements. "Train-the-trainer" and other educational sessions will be organized to provide design and construction personnel with the necessary skills for construction of resilient buildings.

It is intended that these requirements will be applicable to construction of other structures within the country. Therefore, the training will have broad applicability and will ultimately result in the use of best practices across the rebuilding effort.

CAN YOU CUT 3 LINES?

THE CENTER

The "Haiti Built Environment Resource Center" will be an educational resource for all citizens interested in preparation and planning of buildings for disasters. Resources and materials will be available for everyone from children to building professionals to hazard researchers. Housing the Center at a University with access for all citizens will serve numerous purposes:

- Encourage collaboration across disciplines for improving building practices within Haiti
- Allow for eventual self-sustained operation of the Center with local trained personnel
- Expose children and young adults to Universities and foster their aspirations for higher levels of education
- Provide easy access to expertise from the home University and other universities
- Act as a conduit for bringing professors and other experts from universities around the world
- Provide telecommunications and internet for public use
- Expand interest in architecture and engineering careers to assist in the long-term rebuilding of Haiti

While housed at the State University of Haiti (UEH), the Center is meant to be a partnership of both public and private universities in Haiti. It can also serve as a resource for the Caribbean region and bring additional recognition and investment to the home University.

It is intended that this project will serve the needs of all of Haiti. Therefore, the building described herein is considered Phase One of the project. Subsequent buildings and programs are planned for the Western Peninsula, Central Haiti, North Haiti, and Cap Haitian, in addition to the initial building at UEH in Port-Au-Prince.

INTEGRATION INTO THE EXISTING FRAMEWORK

The establishment and maintenance of a sustainable building program depends on the interaction of numerous entities and sectors. Assuring these entities have the necessary resources, training, and support to establish such a program is a key aspect of the Center. The Center, its staff, and the supporting organizations will work with the following organizations both individually and as a whole in the establishment of a strong building culture responsive to the needs of Haiti:

- The Ministry of Public Works in the establishment of a codes system for construction and its Laboratoire National du Bâtiment et des Travaux Publics d'Haïti on the establishment and maintenance of a materials and assemblies testing and certification scheme
- The Ministry of Interior and its Civil Protection Office in supporting departments and local governments in the enforcement of codes and standards
- The Ministry of Education in supporting the development of an extensive vocational training network based on proper practices identified by the Ministry of Public Works and the construction of safe schoools
- The College National des Ingenieurs et Architectes Haïtiens in the reinvigoration of the engineering and architecture professions and the establishment of norms of practice and a licensure scheme
- The private sector will be a key component of the building culture transformation through the demand and supply of safe materials and structures and a trained workforce
- Non-Governmental Organizations (NGOs) will be supporting much of the reconstruction and will need to have access to a trained workforce and technical assistance
- International organizations like the World Bank, USAID, IDB and others will be engaging numerous sectors within the Haitian economy and will require building receptivity to utilization of codes and standards

THE BUILDING AND GROUNDS

The Center will be housed in a building that would also be suitable for a future school design with minor modifications. The building itself would be a demonstration of best practices for resilient structures, with posters and descriptions of each practice at varying levels of detail for children, adults, and design and construction professionals. In order to allow the greatest possible utilization, the building is to be built on an existing university campus. Additional building attributes will be as follows:

- Classrooms for training of building professionals equipped with online training technology to allow for distance training and access to offsite expertise
- Incorporation of different materials and building types found within Haiti
- A Building Sciences Garden featuring examples of proper techniques, with particular focus on children and homeowners
- Use of local labor to assure an initial pool of personnel trained in construction requirements
- Designed with the engagement of a local design team
- Incorporation of renewable energy and water capture practices to achieve additional resilience and sustainability
- Minimal wall and floor coverings and exposed beams and trusses to provide visual examples of proper practices
- Resilience to potential hazards present in Haiti (earthquakes, hurricanes, etc.)






BUILDING DESIGN

In realizing a new model for Haitian construction, we propose a small scale project integrated into its environment with the following design priorities: structural safety, creating an environment for research and learning, and sustainability.

The proposed design envisions a small cluster of buildings situated around a multi-use garden space. Each building will have its own construction method: masonry, steel, concrete, or wood. The connection details of each type of construction would be exposed within each structure, allowing visitors and students to see examples of various assembly systems up close. Conceivably, a lecture on masonry construction would be held in the masonry classroom, and the instructor could point to exposed anchors and ties within the building. Likewise, the same could be done with a steel structure, with the possibility of using a glass curtain wall exposing the construction details not only within the building, but also from the exterior. Tying the buildings together will be an outdoor garden, with small-scale mock-ups of various building assemblies. It would also function as an area where students would be allowed to practice hands-on construction, by building small scale walls and other building assemblies as a learning tool. Sustainable features would include proper solar orientation as well as porches and overhangs for optimal sun shading, photovoltaic panels, solar hot water systems, rainwater collection, and native plants and agriculture. In all, the building will represent a new model for education and experiencing the built environment.

1 Water Collection Cistern
2 Photo Voltaic Panels
3 Multi-Purpose Building
4 Classroom Building
5 Drought Resistant Plants
6 Construction Demonstration Area
7 Partial Structure
8 Wind Turbine
9 Recycled Materials
10 Hurricane Shutters

BUILDING PROGRAM

The program for the Haiti Built Environment Resource Center is generally organized around four categories with an outdoor garden space. It is important for certain program components to have a direct relationship to one another while other components can have a more indirect relationship. All public spaces are accessed from the lobby. The educational spaces have a direct relationship to the outdoor space for demonstrations and mock-ups. Faculty and staff are in close proximity to the classrooms and lecture hall, but it is not essential for them to be adjacent or even on the same floor. The support functions serve the whole building, but can be dispersed throughout the building as the design concepts require.

Within the education space, each classroom will be constructed to demonstrate a different construction type. Students and professionals will not only be taught about construction and best practices, but the rooms will serve as a laboratory for observation and demonstration. The public will be able to view the mock-ups in the outdoor garden space.

CURRICULUM DEVELOPMENT

The Center can offer a diverse curriculum focused on various types of students. Professional courses for university students and continuing education of existing professionals can focus on specific building types and responses to different hazard types. Technical and vocational training can provide hands-on experience for those entering the construction trades. Outreach courses for school children, the general public, NGO's and local governments can also be developed. Building regulatory practice also would be a key area for course offerings specifically focused on local governments. Research in Engineering, Architecture, Physical Planning, Public Policy and Public Administration related to disaster risk reduction will be encouraged and supported by the Center. Below is a brief summary of the potential offerings:

EDUCATION AND TRAINING

The Center will offer a diverse curriculum focused on various types of students. Professional courses for university students and continuing education of existing professionals will focus on specific building types and responses to different hazard types. Technical and vocational training will provide hands-on experience for those entering the construction trades. Outreach courses for school children, the general public, NGO's and local governments will also be developed. Building regulatory practice also would be a key area for course offerings specifically focused on local governments.

Technical and Vocational

In connection with the existing framework for vocational school and curriculum accreditation under the Ministry of Education, the Center will serve as the forum for development of the relevant criteria to assure a properly trained labor force. The Center building also will provide classrooms and other resources to provide such training. Examples of covered topics include:

- Masonry
- Plumbing
- Electrical
- Carpentry
- HVAC
- Mixing and placement of concrete
- Use and placement of reinforcing steel
- Execution of confined masonry
- Application of wind resistant tie-downs at foundation and roof
- Flood elevation installation

Professional

Architects, engineers, planners, scientists, and other professionals are critical to the rebuilding of a safe and sustainable building stock. Working with the College National des Ingenieurs et Architectes Haïtiens, the Ministry of Public Works, and others, the Center will assist with the development of relevant curriculum, continuing education, and other activities to support professionals essential for safe and sustainable buildings. Specific areas of study can include:

- Earthquake engineering
- Design for wind
- Design for flood
- Concrete, steel, wood, masonry, confined masonry, complex buildings, and non-engineered structures
- Testing and certification of building materials
- Infrastructure design for earthquake, wind and flood resilience
- Architectural and non-structural design for earthquake, wind and flood
- Methods for the evaluation and strengthening of existing vulnerable buildings

- Geotechnical and site analysis for earthquake and flood
- Microzonation for earthquake, wind and flood
- Land use management and urban planning for disaster risk reduction
- Regulatory administration and implementation for safe design, construction and land use
- Application of Geographic Information Systems to hazard and vulnerability analysis
- Public policy to evaluate and upgrade existing vulnerable buildings
- Insurance valuation of risk for earthquake, flood and wind damage
- Floodplain mapping technology
- Coastal zone land use management for storm surge, tsunami and cyclonic storm
- Micro- and macro- economics of disaster mitigation investment

Governmental

The widespread realization of safe and sustainable buildings will depend on an effective governmental quality assurance program with permitting, plan review, site inspection, and prosecution. Training for state and local officials in the implementation and utilization of such practices will be a key role for the center. Potential courses include:

- Plan review
- Site inspection
- Building certification and enforcement
- Building department management

NGOs

With significant reconstruction activities to be conducted under the supervision of non-governmental organizations (NGOs) it will be important that such organizations have access to training and resources that reflect the best practices for Haitian constructions. Also, many NGOs will be a major point of contact for Haitian citizens and should have support and materials from a central repository of information and source of technical assistance.

Educators

A sustained long-term building program with safe buildings at its core will depend on a well-trained workforce of laborers and professionals. In order to assure an adequate supply of building professionals, trainers, professors, and other educators must be in place. Such educators will require training on both educational techniques and building-specific knowledge. In addition to the professor exchanges and guest lecturers identified below, the Center can provide courses and other resources to support the development and maintenance of educators.

Researchers

Research related to Haiti specific hazards, appropriate responses, and cultural norms will be important in producing a shift in Haiti's building culture. Supporting the underlying practices and procedures for valid research will allow for the establishment of respected research activities. The Center will assist in the education and training related to such requirements.

RESEARCH AND TESTING

Research in Engineering, Architecture, Physical Planning, Public Policy and Public Administration related to disaster risk reduction will be encouraged and supported by the Center.

- Materials research
- Hazards
- Education methods
- Social Sciences related to buildings and hazards
- Materials testing
- Testing of Assemblies

RESOURCES

The Center itself will provide access to resources gathered from the following sources and others who wish to make information available:

- *National Institute of Building Sciences Haiti Toolkit*

  Immediately following the January 12 earthquake, the National Institute of Building Sciences called on the entire U.S. building community to provide its vast knowledge, experience, expertise and resources to the people of Haiti to assist in reconstruction. The toolkit contains numerous resources, codes and standards, and training materials. The Institute's National Clearinghouse for Educational Facilities will also be made available.

- *Visiting professors and exchanges and Guest lectures*

  Building local expertise and leadership will be critical for the safe and sustainable reconstruction and long-term prosperity of Haiti. Building such expertise and leadership will require a well-trained and well-connected supply of educators. Through the assistance of the participating organizations and their members, UEH and other Haitian universities can receive semester or year-long visiting professors to supplement the in-country expertise. Haitian professors and professionals also can be invited to visit institutions outside Haiti to expand their expertise.

  Besides longer-term visits or exchanges, the Center will support a regular guest lecturer series that brings international experts to the Center for programs engaging all aspects of the Haitian (and regional) building community. Such a series will cover all related disciplines as recognized by the scope of the Center.

- *Distance learning*

  Expertise on the design and construction of resilient buildings, understanding hazards, and other related disciplines is present around the world. In addition to building expertise within Haiti, Haitians also should have access to such global expertise. In addition to the visitation programs and exchanges mentioned above, facilities and infrastructure will be available for guest lectures and ongoing courses making use of experts outside of Haiti. These facilities and infrastructure also can support programs at several locations across the country including UEH campuses and campuses of other universities.

  It is also anticipated that after a period of time, that the Center will become known world-wide as a leader in the education of design for natural hazard, and will become a place where that expertise is shared with others around the world.

OUTREACH

- Educational materials, programs and displays for school children
- Educational materials, programs and displays for the general public
- Training delivery at public and private institutions throughout Haiti
- Training and technical assistance to local government throughout Haiti
- Training and technical assistance to private sector designers, builders and building owners throughout Haiti
- Training and technical assistance to GOH ministries related to safe construction
- Training and technical assistance to NGO's building in Haiti
- Training and technical assistance to owners/builders and individuals

Additional Outreach Tools

Recognizing the need to provide the resources, tools, techniques, and training to citizens and practitioners outside the city of Port-au-Prince, the participating organizations will equip a mobile resource center with videos, pamphlets and other materials to describe proper construction practices. This mobile van will allow the Center to disseminate critical information to other towns and regions, and will demonstrate the Center's commitment to the concept of decentralization to reduce risk.

ROOM NAME	QUANTITY OF PEOPLE	NSF / PEOPLE	NSF / SPACE	NSM / PEOPLE	NSM / SPACE	QUANTITY OF SPACES	TOTAL NASF	DESCRIPTION
Lobby	N/A	N/A	100	N/A	30.48	1	100	Reception and gathering space for students and guests.
Event/multi-purpose space	30	20	600	6.10	182.88	2	1,200	Flexible room for meetings, lectures, demonstrations, dinners, community meetings, etc.
Small kitchen			300	N/A	91.44	1	300	Supports the event space. Sink, small refrigerator, storage space.
Resource room / library	30	35	1050	10.67	320.04	1	1,050	Reading room with shelving and research materials among group study areas.
Lecture hall / auditorium	50	25	1250	7.62	381.00	1	1,250	Tiered seating with fixed tables.
Garden / outdoor pavilion			600	0	182.88	1	600	Covered outdoor classroom / gathering space.
Classroom	30	25	750	7.62	228.60	4	3,000	Flat floor classrooms should provide maximum seating flexibility and include built-in distance-learning capability. Wireless microphones will be included for flexibility. Casework will be included at the perimeter of each room. Outdoor access and space will be provided for all classrooms.
Breakout / seminar room	15	20	300	6.10	91.44	4	1,200	Conference style rooms provide meeting space for 15 students. The rooms should have wireless access and adjacencies to the classrooms and labs.
Computer lab	30	30	900	9.14	274.32	1	900	The computer lab should be configured so that it can also serve as a classroom. Power should be in the floor with wireless hubs. Space should be included for a printer.
Classroom storage			200		60.96	2	400	Two storage rooms for all classrooms to hold media equipment and furniture.
Testing lab	30	75	2250	22.86	685.80	1	2,250	Similar to a physics teaching lab, with wide counter tops, sinks, fume hood, and open space for observation. Primarily used for mock-ups of building systems and structural components. Should have access to the outdoors.
Lab storage			500		152.40	1	500	Storage space for material storage cabinets, equipment, machinery, etc. The room should be easily accessible from outside for deliveries.
Staff office	1	100	100	30.48	30.48	3	300	Private offices for professors.
Director office	1	120	120	36.58	36.58	1	120	Private office for director.
Admin support	1	80	80	24.38	24.38	1	80	Cubical space for administrative staff. Some administrative desks should be located next to the lobby to serve as a reception area.
Files / copy / supplies			100	N/A	30.48	1	100	Space for lockable files, copier, office supplies, etc. Can be worked into the layout of the office area. Does not need to be a single room or space.
Restrooms			700		213.36	2	1,400	Total of 440 occupants; assume 220 per gender. 6 toilets per gender; 4 lavatories per gender. Total of 12 toilets, 8 lavatories. 4 drinking fountains.
Custodial			120	N/A	36.58	1	120	Custodial sink with supplies storage.
Mechanical room			1,000		304.80	1	1,000	Building support.
IT support			500		152.40	1	500	
Trash/recycling	N/A	N/A	100	N/A	30.48	1	100	

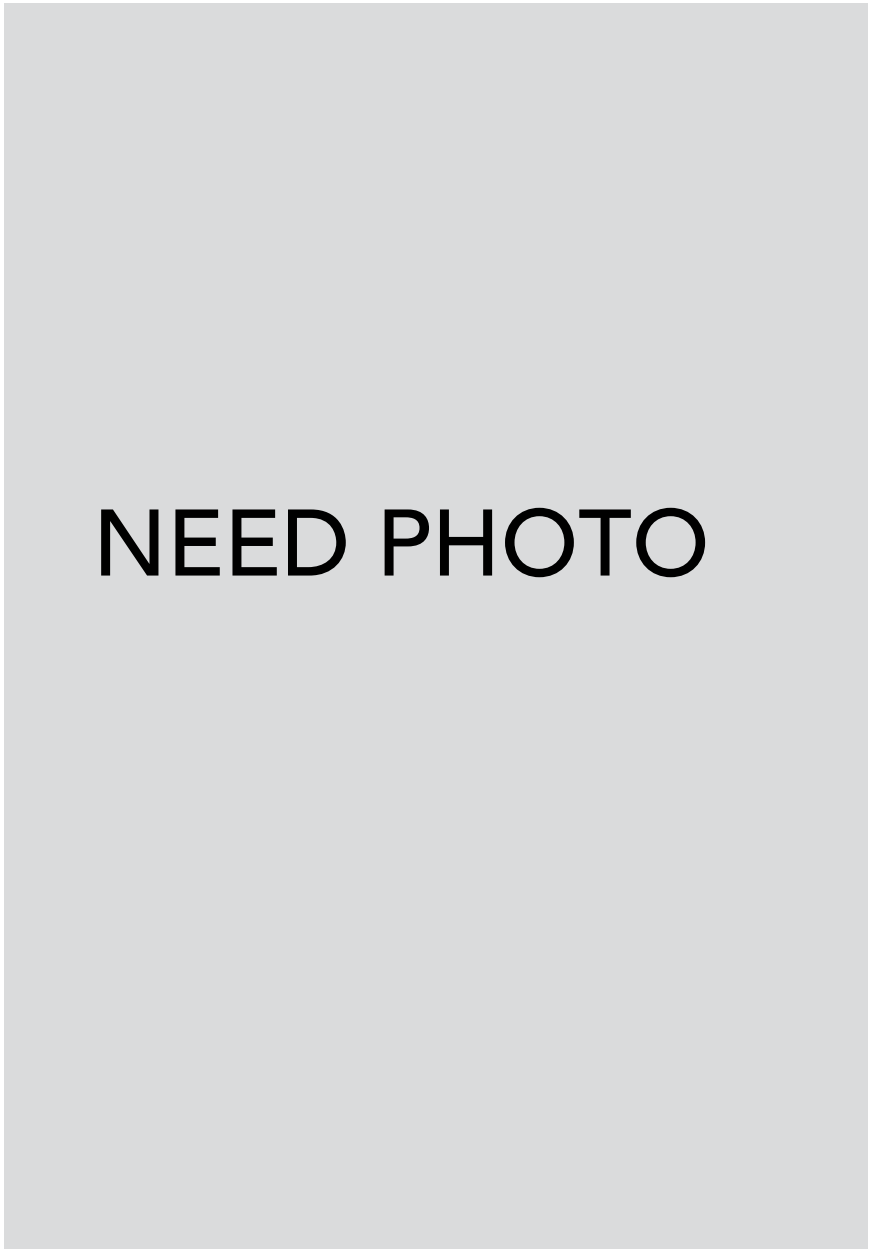
Total Program Net Square Footage	16,470	Total Program Net Square Meters	1,530
Efficiency at 60%		Efficiency at 60%	
Approximate GSF	27,450	Approximate GSM	2,550

PARTICIPATING ORGANIZATIONS

NATIONAL INSTITUTE OF BUILDING SCIENCES
EARTHQUAKE ENGINEERING RESEARCH INSTITUTE
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
AYERS SAINT GROSS ARCHITECTS + PLANNERS
YCF GROUP, S.A.
NATIONAL ORGANIZATION FOR THE ADVANCEMENT OF HAITIANS (NOAH)
INSTITUTE FOR BUILDING TECHNOLOGY AND SAFETY
THE STATE UNIVERSITY OF HAITI (UEH)
HAITIAN AMERICAN ENGINEERING ASSOCIATION (ADIHA)
WITT ASSOCIATES
CALIFORNIA POLYTECHNIC STATE UNIVERSITY

The Haiti Built Environment Resource Center, Inc. (HHRC) was established as a 501(c)(3) U.S. non-profit organization to allow coordination of activities and funding for the establishment of the Haiti Built Environment Resource Center. Each of the participating organizations listed above named a member of the HHRC Board of Directors.

Following the initial development of the Center and its activities, the HHRC is intended to serve as a supporting organization for the ongoing operations of the Center.



NATIONAL INSTITUTE OF BUILDING SCIENCES

www.nibs.org

The U.S. Congress authorized the establishment of the National Institute of Building Sciences through the Housing and Community Development Act of 1974, Public Law 93-383. Congress recognized the need for an organization that could serve as an interface between government and the private sector. The Institute's mission is to serve the nation and public interest by supporting advances in building science and technology to improve the built environment. Through the Institute, Congress established a public/private partnership to enable findings on technical building-related matters to be used effectively to improve government, commerce and industry.

The Institute's councils and standing committees—the Consultative Council; the Building Enclosure Technology and Environment Council (BETEC); the Building Seismic Safety Council (BSSC); the buildingSMART alliance (bSa); the Facility Maintenance and Operations Committee (FMOC); the High Performance Building Council (HPBC); the Multihazard Mitigation Council (MMC); the National Clearinghouse for Educational Facilities (NCEF); and the Whole Building Design Guide (WBDG) – are integral and vital components of the Institute. They focus on broad-based and specialized building process issues. Each council is governed by a voluntary board of direction of nationally recognized leaders in appropriate disciplines.

EARTHQUAKE ENGINEERING RESEARCH INSTITUTE

www.eeri.org

EERI is the principal national society in the U.S. for professionals dedicated to reducing earthquake risks by advancing the science and practice of earthquake engineering, increasing the understanding of the impact of earthquakes on the physical, social, economic, political and cultural environment, and advocating comprehensive and realistic measures for reducing the harmful effects of earthquakes. The 2,500 members come from nearly every state in the nation and 60 foreign countries. EERI's membership is multi-disciplinary and includes engineers and earth science professionals, experts in physical and social sciences and public policy, architects and urban planners. Our members are in private practice, government and academia.

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

www.vt.edu

Virginia Tech is the most comprehensive land grant University in the Commonwealth of Virginia. It has top-ranked Colleges of Engineering and Architecture and Urban Planning and a cross-disciplinary Institute for Disaster Risk Management. The Disaster Risk Reduction program in the College of Architecture has been active in earthquake hazard mitigation and post-earthquake reconstruction for the past thirty years. Project work has been carried out in Mexico, Jamaica, Turkey, Armenia, India and Bangladesh.

With funding from USAID, Virginia Tech partnered with the Bangladesh University of Engineering and Technology to establish the Bangladesh National Center for Earthquake Engineering. Virginia Tech led this very successful partnership with the assistance of the Earthquake Engineering Research Institute and the Consortium of University Centers for Research in Earthquake Engineering. Virginia Tech also has vast experience with development work in Haiti. Currently they lead a Higher Education in Development partnership with the Ecole Superioure d'Infotronique d'Haiti (ESIH) and are engaged in agricultural development in the central highlands. The Virginia Tech chapter of Engineers Without Borders is working on structural repair and water and sanitation projects for clinics in Haiti.

AYERS SAINT GROSS

www.asg-architects.com

Ayers Saint Gross is an internationally-recognized design firm with expertise in building design, renovation, planning, landscape architecture, sustainability and graphic design. Their mission is to engage people and places to create designs which enrich our world.

Ayers Saint Gross is unique in that more than 85% of their work is for colleges, universities and cultural facilities worldwide, having worked on over 500 projects for more than 140 Institutions.

Employing 140 professionals, the firm is organized into a series of cross-disciplinary studios specializing in the design of buildings for arts and sciences, student life, and cultural facilities, as well as studios which focus on planning, landscape architecture and graphic design. All of their work is highly sustainable, designed to the highest standards possible by the site and building type.

Their work is marked by a commitment to align the physical form of their design solutions with the mission, structure and spirit of their clients. In all of their projects the goal is to work with clients to create high performance environments that promote the dissemination of knowledge and culture.

YCF

www.

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NEED TEXT

NATIONAL ORGANIZATION FOR THE ADVANCEMENT OF HAITIANS

www.noahhaiti.org

The National Organization for the Advancement of Haitians (NOAH) was founded in 1991 as a U.S. based 501(c)(3) not-for-profit social policy corporation in response to the refugee crisis resulting from political unrest and upheaval in Haiti. NOAH is now one of the leading organizations of the Haitian Diaspora. Since its inception, NOAH has worked to broaden understanding of Haiti, its people, its culture and to assist the country in gaining economic independence and stability. Through information, education, and its medical missions, NOAH plays a critical and pivotal role in building support for Haiti, and in providing medical and humanitarian relief to Haitians from natural disasters.

INSTITUTE FOR BUILDING TECHNOLOGY AND SAFETY

www.ibts.org

The Institute for Building Technology and Safety (IBTS) is a group of building industry professionals that provides various types and levels of building department services and municipal services to clients across the United States. IBTS is a not-for-profit, public service organization dedicated to public safety, with more than thirty years of experience working with Federal, State and local governments. As a government-founded "not-for-profit" corporation, IBTS combines governmental credibility with private sector efficiency.

IBTS succeeds because they build lasting relationships with their clients and the customers they serve. They understand the needs for regulatory programs, and the need for responsiveness to businesses and citizens. IBTS is fully capable of creating buildings departments from the ground up, attracting, hiring and training local talent, or acting in the capacity of a municipal department when those resources do not yet exist in a given area.

IBTS services are tailored to meet the needs of their clients, including emergencies, short- or long-term inspections, plan reviews, and other technical services. IBTS's staff delivers unbiased and objective reports, and is experienced in professional interaction with builders, contractors, and citizens. With a large staff of experienced registered design professionals, and a highly qualified technical staff evidenced by nationally recognized certifications and licenses, IBTS is the ideal partner for technical services. IBTS can respond efficiently and effectively to the needs of large or small jurisdictions.

THE STATE UNIVERSITY OF HAITI (UEH)

www.ueh.edu.ht

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NEED TEXT

HAITIAN AMERICAN ENGINEERING ASSOCIATION (ADIHA)

www.adiha.org

Headquartered in New York, the Haitian American Engineering Association (ADIHA) is a nonprofit organization with 501 (C) (3) status, dedicated to the advancement of Engineering and Science in the Haitian community. With approximately 375 members, the association is committed to further the education of young people, and to provide technical assistance to community-based organizations both here in the US and in Haiti.

The "ADIHA" was created in 1983 to respond to the need of the engineering and scientific Haitian American community for a professional organization. It was also a way to provide technical information to community organizations here and back home in an effort to work for the progress and the advancement of Haiti.

Since its founding, ADIHA has worked hard to develop meaningful programs to benefit the Haitian and Haitian American communities, including job fairs, training, conferences, technical support to community organizations, and research on Haiti. In addition, ADIHA maintains a working relationship with several engineering organizations in Haiti, the United States and Canada.

WITT ASSOCIATES

www.wittassociates.com

Witt Associates is a public safety and crisis management consulting firm based in Washington, D.C., with offices located throughout the country. Witt Associates has unrivaled experience and hands-on knowledge of emergency preparedness, response, recovery and mitigation. Witt Associates bridges government agencies and non-profits with industry and citizens as they assist state and local governments to prepare for and recover from disasters and crisis.

Witt Associates is uniquely positioned to bring together policy architects and technical experts in public safety, with leaders from all levels of government and private sector partners to forge solutions to emergency management challenges.

The team includes seasoned crisis and emergency management leaders with significant experience in the public sector to provide consultation on key issues of public safety. The team is proficient in the details of emergency management, committed to the responsibility of the profession, and understands how crisis and emergency management work fits into a larger political and social climate.

CUT TEXT

CALIFORNIA POLYTECHNIC STATE UNIVERSITY COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

www.caed.calpoly.edu

Cal Poly's College of Architecture and Environmental Design (CAED) is California's leading institution for the education of the built environment professional. It strengths lie in the synergy provided by having five professional departments in one college: Architecture, Architectural Engineering, Construction Management, Landscape Architecture, and City and Regional Planning. The common educational goal shared by all degree offerings within the CAED is excellence in educating tomorrow's architecture and environmental design leaders.

Seismic design, best building practices, and sustainable planning and design, are unique aspects of the college's offerings. All departments are nationally accredited, nationally ranked, and acclaimed for their outstanding faculty and for the close interaction of faculty and students due to small class sizes, laboratory-based courses and Cal Poly's distinguished learn-by-doing approach to education. Students receive an education and a skill set to succeed as professionals. The college has over 12,000 graduates.

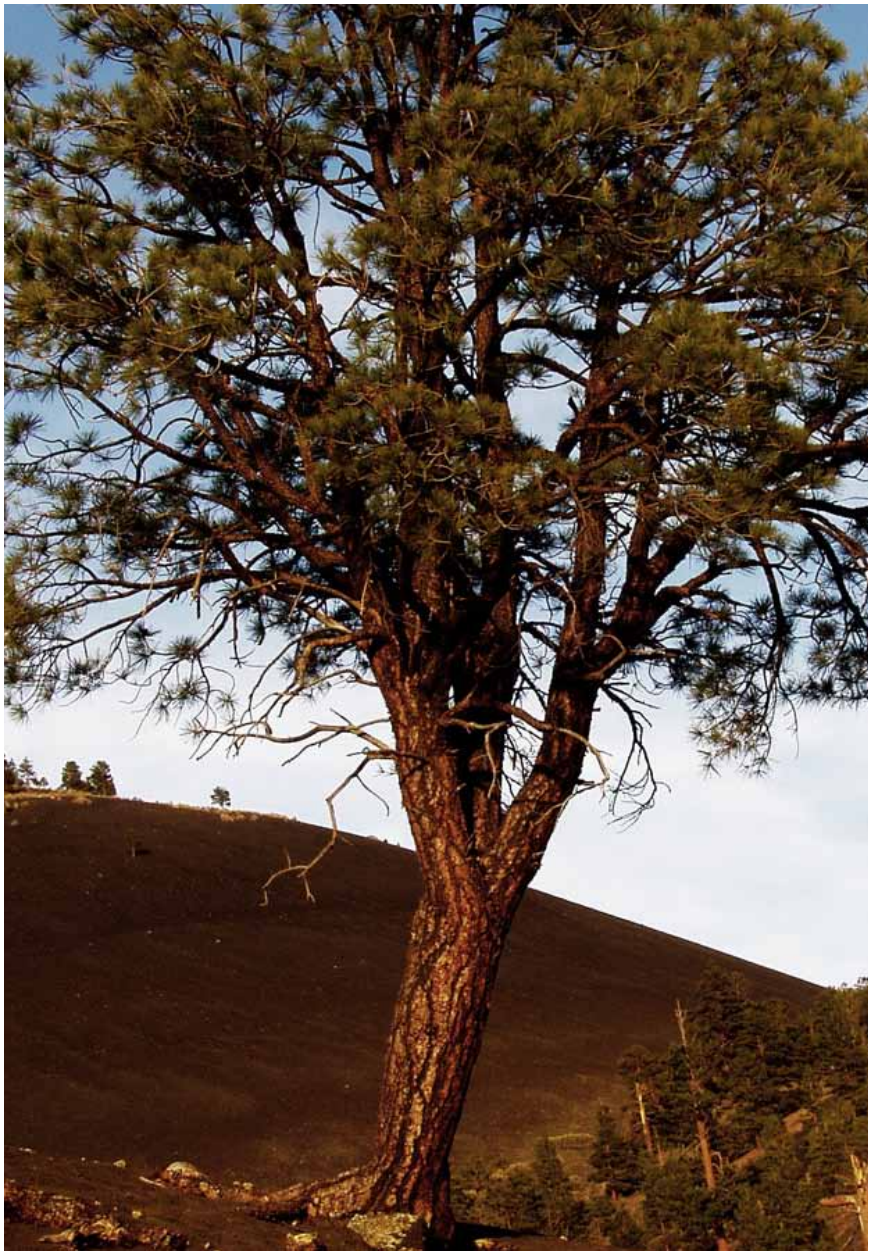
The CAED has strengths in structural and climatic and energy efficient design, delivery, Integrated Project Delivery, hazard mitigation planning, climate planning, and land use planning. The Planning, Design and Construction Institute (PDCI), the California Center for Construction Excellence, and the Renewal Energy Institute support the CAED applied research and industry-training functions. The CAED's 5,000 sq foot Simpson Strong-Tie Materials Demonstration Lab serves as an interdisciplinary learning laboratory to design, build and test a variety of structural components. Cutting edge work is being conducted through the PDCI in the areas of: low-weight high strength temporary shelter design, hazard mitigation planning, climate action planning, low energy use design, and integrated project delivery. CAED faculty have worked in disaster recovery, mitigation planning, and reconstruction practices in Japan, Central America, Latin America, the Philippines, Africa, Asia, and Haiti.

PROJECT FUNDING

Funding needs for the project are estimated at $_____ in addition to the extensive in-kind support provided by the U.S.-based building community and the participating organizations. Currently, a donor or donors that intend to establish a long-term presence in Haiti is being sought.

Endowment funds could also be established to help offset some of the Center's operational costs and support professorships.

It is anticipated that the Center will offer a broad array of courses targeted for different audiences. Those suitable for private industry or government officials would require a fee to participate, thus offsetting some of the Center's expenses.



ESTIMATE OF COSTS (BUILDING ONE)

A. Acquisition

#	DESCRIPTION	COST
1	Purchase / Lease Cost	$0
2	Appraisal Closing Costs	$0
	Subtotal	**$0**

B. Consultant Services

1. A/E Basic Services

#	DESCRIPTION	COST
a	Basic Services	$450,000
b	Sitework	$40,000
c	Misc. Project Fees (Pre-Design)	$25,000
d	Contingency (3%)	$15,500
	Subtotal	**$530,500**

2. A/E Additional Services

#	DESCRIPTION	COST
a	Programming / Pre-Schematic Design	$20,000
b	Life Cycle / Cost Benefit Analysis	$15,000
c	Landscape Consultant	$35,000
d	Cost Estimates	$60,000
e	Communications System Design	$40,000
f	AV Consultant	$60,000
g	Civil Engineering	$40,000
h	Reimbursable Expenses (Design Team)	$25,000
i	Reimbursable Expenses / Pre-Design	$5,000
j	Renderings / Models	$25,000
k	Mock-ups / Large Models	$20,000
l	Contingency (5%)	$17,500
	Subtotal	**$362,500**

3. Other Services

#	DESCRIPTION	COST
a	Site Survey / Existing Conditions	$5,000
b	Geotechnical Review / Borings	$7,500
c	Tests	$10,000
d	Building Permit	$5,000
e	Project Team Travel Expenses	$15,000
f	Construction Manager / G. Conditions	$60,000
g	HVAC Balancing	$12,000
h	Contingency (5%)	$5,000
	Subtotal	**$119,500**

C. Construction

#	DESCRIPTION	COST
1	Sitework	$275,000
2	Building / Systems	$3,139,625
3	Owner Change Order Contingency (6%)	$204,877
	Subtotal	**$3,619,502**

D. Equipment

#	DESCRIPTION	COST
1	Moveable Equipment / Furnishings	$200,000
2	Telecommunications/Audio Visual	$150,000
3	Computers	$150,000
4	Mobile Teaching Vehicle	$40,000
5	Contingency (10%)	$54,000
	Subtotal	**$594,000**

E. Haiti School Requirements Development

#	DESCRIPTION	COST
1	Planning/Development Meetings (2) • Meeting space, food • Travel (including 2-3 Haitian experts) • 2-3 day meeting, 8-10 participants • Honoraria (if requested)	$70,000
2	Editor/Illustrator for criteria documents	$30,000
3	Translator for criteria documents	$25,000
4	Project Manager	$25,000
	Subtotal	**$150,000**

SUMMARY

#	DESCRIPTION	COST
A	Acquisition	$0
B	Consultant Services	$1,012,500
C	Construction	$3,619,502
D	Equipment	$594,000
E	Haiti School Requirements Development	$150,000
	Subtotal	**$5,376,002**

ESTIMATE OF COSTS (BUILDINGS TWO & BEYOND)

A. Acquisition

#	DESCRIPTION	COST
1	Purchase / Lease Cost	unknown
2	Appraisal Closing Costs	unknown
	Subtotal	**unknown**

B. Consultant Services

1. A/E Basic Services

#	DESCRIPTION	COST
a	Basic Services	$350,000
b	Sitework	$40,000
c	Misc. Project Fees (Pre-Design)	$25,000
d	Contingency (3%)	$15,500
	Subtotal	**$430,500**

2. A/E Additional Services

#	DESCRIPTION	COST
a	Programming / Pre-Schematic Design	$10,000
b	Life Cycle / Cost Benefit Analysis	$5,000
c	Landscape Consultant	$35,000
d	Cost Estimates	$60,000
e	Communications System Design	$20,000
f	AV Consultant	$30,000
g	Civil Engineering	$40,000
h	Reimbursable Expenses (Design Team)	$25,000
i	Reimbursable Expenses / Pre-Design	$5,000
j	Renderings / Models	$25,000
k	Mock-ups / Large Models	$20,000
l	Contingency (5%)	$17,500
	Subtotal	**$292,500**

3. Other Services

#	DESCRIPTION	COST
a	Site Survey / Existing Conditions	$5,000
b	Geotechnical Review / Borings	$7,500
c	Tests	$10,000
d	Building Permit	$5,000
e	Project Team Travel Expenses	$15,000
f	Construction Manager / G. Conditions	$60,000
g	HVAC Balancing	$12,000
h	Contingency (5%)	$5,000
	Subtotal	**$119,500**

C. Construction

#	DESCRIPTION	COST
1	Sitework	$275,000
2	Building / Systems	$3,139,625
3	Owner Change Order Contingency (6%)	$204,877
	Subtotal	**$3,619,502**

D. Equipment

#	DESCRIPTION	COST
1	Moveable Equipment / Furnishings	$200,000
2	Telecommunications/Audio Visual	$150,000
3	Computers	$150,000
4	Mobile Teaching Vehicle	$40,000
5	Contingency (10%)	$54,000
	Subtotal	**$594,000**

E. Haiti School Requirements Development

#	DESCRIPTION	COST
1	Planning/Development Meetings (2) • Meeting space, food • Travel (including 2-3 Haitian experts) • 2-3 day meeting, 8-10 participants • Honoraria (if requested)	$15,000
2	Editor/Illustrator for criteria documents	$15,000
3	Translator for criteria documents	$5,000
4	Project Manager	$10,000
	Subtotal	**$45,000**

SUMMARY

#	DESCRIPTION	COST
A	Acquisition	unknown
B	Consultant Services	$842,500
C	Construction	$3,619,502
D	Equipment	$594,000
E	Haiti School Requirements Development	$45,000
	Subtotal	**$5,101,002**

	2011												2012											
FUNDING NEEDS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Pre-Design/Testing/Surveys	20	20																							**40**
Master Plan Development		20																							**20**
Prototype Design			80	40																					**120**
Detailed Design				138	276	138																			**552**
Construction Administration							17	17	17	17	17	17	17	17	17	17	17	17							**204**
Curriculum Development							50	50	50																**150**
Construction							302	302	302	302	302	302	302	302	302	302	302	302							**3,624**
Post-Construction Testing																			40	40					**80**
Equipment																		200	200	194					**594**
Operations																					70	70	70	70	**280**
TOTALS	20	40	80	178	276	138	369	369	369	319	319	319	319	319	319	319	319	519	240	234	70	70	70	70	5,664
CUMULATIVE	20	60	140	318	594	732	1,101	1,470	1,839	2,158	2,477	2,796	3,115	3,434	3,753	4,072	4,391	4,910	5,150	5,384	5,454	5,524	5,594	5,664	

Note: Numbers represent increments of $1000 US dollars.

PAYROLL/SALARIES		COST
Director		$50,000
Deputy Director		$30,000
Administrative Assistants		$20,000
Secretary		$15,000
Instruction Director		$30,000
Research Director		$30,000
Outreach Director		$30,000
Part Time Faculty (State University) (5 at $15K)		$75,000
Part Time Faculty (Expatriates) (5 at $30K)		$150,000
Visiting Lecturers (10 at $60K)		$60,000
Student Assistants (20 at $5K)		$100,000
Maintenance Staff (4 at $15K)		$60,000
	Subtotal	**$650,000**

Advertising/Recruiting		$1,500
Computer Equipment/Repair		$12,000
Staff Development ($1,000 x staff)		$17,000
Field Trips		$5,000
Instructional Material & Equipment		$10,000
Instructional Supplies & Library		$15,000
Dues and Subscriptions		$1,000
Office/General Supplies		$2,500
Professional Fees		$3,000
Contract Services		$10,000
Printing/Copies		$5,000
Marketing Materials		$7,500
Internet Access		$2,000
Utilities		$20,000
Cleaning Contract		$6,000
Maintenance/Repairs/Supplies		$3,000
Telephone		$4,000
Insurance		$5,000
Security		$10,000
Transportation		$15,000
Food Service		$15,000
Contingency		$20,000
	Subtotal	**$189,500**

Estimated Annual Operating Costs (per building)	**$839,500**






FUNDING OPPORTUNITIES

SPACE TYPE	SPONSORSHIP
Classrooms (Masonry, Wood, Steel, Concrete)	$1,000,000
Lecture Hall	$750,000
Library	$750,000
Computer Lab	$750,000
Testing Lab	$750,000
Event Space	$750,000
Seminar Rooms	$500,000
Outdoor Pavilion	$500,000
Resource Van	$500,000

It is anticipated that the center will offer a broad array of courses targeted for different audiences. Those suitable for private industry or government officials would require a fee to participate, thus offsetting some of the center's expenses.

CONTACT INFO

The Haiti Built Environment Resource Center is a collaboration of many organizations representing the breadth of disciplines essential to safe and sustainable building. In support of this effort, many of the organizations have come together to establish a U.S. based non-profit organization, "Haiti Built Environment Resource Center," to serve as the coordinating entity for establishment, funding, and ongoing support of the Center. For details on the Center, its proposed activities, and other information contact:

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