

## Section I: Competition Brief

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### **1. Overview**

ArchNet, in partnership with the MIT Media Lab and Professor Charles Correa, have developed an architecture competition in the form of a charrette. The competition is to design a Computer Clubhouse geared towards use by all members of the community, but particularly young people of ages 10-18, in a tropical climate in East Africa. The Computer Clubhouse project is an international network of community technology centers for youth from economically disadvantaged communities. The Computer Clubhouse is to be situated within the context of a school operated by the Aga Khan Education Services in Mombasa, Kenya. The winning submission may be constructed if deemed appropriate by the jury.

### **2. Competition Organizer**

ArchNet (<http://archnet.org/>) is an online community for architects, planners, urban designers, interior designers, landscape architects, and scholars with a special focus on the Islamic world. It is funded by the Aga Khan Trust for Culture and administered through MIT's School of Architecture and Planning. This Competition marks the second online charrette to be lead by Professor Correa and executed on ArchNet.

### 3. Client

The Aga Khan Education Services (AKES) (<http://akdn.org/agency/akes.html>) is part of the Aga Khan Development Network (<http://akdn.org/>), and currently operates more than 300 schools and advanced educational programmes that provide quality pre-school, primary, secondary, and higher secondary education services to students in Pakistan, India, Bangladesh, Kenya, Uganda, Tanzania, Kyrgyz Republic, and Tajikistan. AKES has agreed to build a Computer Clubhouse within the context of its new school in Kilindini, Mombasa Island, Kenya, if the Competition Jury can identify a suitable scheme.

### 4. Theme

The Computer Clubhouse (<http://www.computerclubhouse.org/index.htm>) is an initiative of the Boston Museum of Science in cooperation with the MIT Media Lab and Intel. Computer Clubhouses are designed to empower young people to become more capable, creative, and confident learners, through the innovative use of new media technologies. The goal is not simply to provide access to new technologies, but to help youth learn to express themselves with new technologies. The Computer Clubhouse provides an alternative to traditional classroom-based approaches to learning guided by four principles:

- o *Learning by Designing.* As Clubhouse members design their own graphics, animations, robotic constructions, and music compositions, they learn important concepts and skills, while also learning about the process of design and invention: how to conceptualize a project, how to find alternatives when things go wrong, and how to view a project through the eyes of others.
- o *Following Your Interests.* When people care about what they are working on, they are willing to work longer and harder, and they learn more in the process. Clubhouses provide members with a great deal of choice, so that members can find projects and activities that they really care about.
- o *Building Community.* At Clubhouses, youth of different ages share ideas and work together on projects, with support from staff and adult mentors. Design teams form informally, coalescing around common interests. Clubhouse youth also make connections to the surrounding community, developing projects to address the needs of the neighborhoods where they live.
- o *Respect and Trust.* At Clubhouses, young people are treated with trust and respect – and are expected to treat others the same way. The goal is to create an environment in which participants feel safe to experiment, explore, and innovate.

The first Computer Clubhouse opened in 1993 in Boston, USA, as a joint project of the Boston Museum of Science and the MIT Media Lab. With support from Intel, the Clubhouse network has expanded to more than 70 sites in more than a dozen countries, including India, China, Taiwan, Philippines, South Africa, Brazil, Mexico, Colombia, Costa Rica, Ireland, Netherlands, Germany, and Israel.

## **5. Vision**

This Competition seeks to expand the role of the Clubhouse to not only empower youths from economically disadvantaged communities, but also provide evening activities for adults in the form of classes, workshops, and other activities. Although working at different times of the day, adults and youth will come to share the same spirit of collaborative creativity through the environment and tools provided by the Computer Clubhouse building.

If built, this Clubhouse will serve as a prototype for future Clubhouses that will eventually comprise a network of Clubhouses in North Africa.

## **6. Site**

The Aga Khan Academy in Kilindini is located on a southwestern promontory of Mombasa Island. Already revealing the intricate outlines of a Swahili village, the 4.1-hectare campus will integrate classrooms, libraries, state-of-the-art science and language laboratories, playing fields and a swimming pool into a fully networked, Internet-enabled academic environment. The Academy is scheduled for completion in September of 2003. Landscaped amidst ancient baobab trees, overlooking the Indian Ocean, the school complex is designed, like others under development, by leading international and local architects.

*“Africa and the developing world can help create centres of educational excellence that will at the same time, be international and indigenous, and that will help mould young men and women from all walks of life and all parts of the world into the leaders of tomorrow.”*

His Highness the Aga Khan, speaking in Mombasa, Kenya, 21st February 2003

Plans, drawings and images will be made available on ArchNet. Please refer to Part II for further information on Mombasa and Swahili architecture.

## **7. Professional Advisor**

Professor and architect Charles Correa will be providing academic mentorship to all student teams involved in this competition. Also, MIT would designate a resource group consisting of architects and other consultants and specialists to deliver online presentations and give critiques to the students on their designs through the development process.

## **8. Jury**

Mitchell Resnick, Media Lab, MIT  
William Mitchell, School of Architecture and Planning, MIT  
John De Monchaux, Department of Urban Studies and Planning, MIT  
John Ochsendorf, Department of Architecture, MIT

## **9. Online Facilitation**

This competition and charrette will be facilitated entirely online through the ArchNet Web site.

The competition will require the formulation of teams of students working together. Each participating school will be allowed to enter a maximum of two teams made up of 2-5 persons per

team. Each team needs to have a dedicated computer with Internet access, a microphone, and speakers. Thus, the institution has to ensure that two computers are provided to the participating teams.

A Group Workspace will be set-up on ArchNet with sub-group workspaces for each team. The Group Workspace will contain all of the background information about the project, participants, contact details, and spaces for overall participant discussion. This space will allow administrators at ArchNet to post announcements and deadlines regarding the competition. Prior to the commencement of the limited competition, a series of online lectures will be recorded on ArchNet. These lectures by Charles Correa, William Mitchell, and Mitch Resnick will provide some food for thought when approaching the design problem. The lectures will be available for all participants to listen to and view.

The sub-group workspaces will be for each team to post their questions and work. Pin-up spaces are available so that drawings and ideas can be commented upon. In addition, ArchNet will use Elluminate VClass software to facilitate audio links and allow for images/drawings to be discussed and sketched over. These will be online desk crits and feature professors from MIT and the Media Lab responding to the concerns of the team members.

### **10. Participating Schools and Coordinators**

The Competition is currently open to departments of architecture at the following universities:

Universidad Nacional Autonoma de Mexico: *Felipe Leal, Carla Mendoz, coordinators*

University of Liverpool: *Magda Sibley*

Misr International University: *Khaled Asfour and Samir Hosni*

Istanbul Technical University: *Alexis Sanal and Arzu Erdem*

American University of Sharjah: *Amr Moustafa and Ali Shakarchi*

Faculty members at the five participating schools will work with coordinators at the ArchNet central office to run the competition. They will be responsible for organizing a preliminary design exercise amongst a number of student teams. They will then select the strongest two teams to represent the institution in the competition. The coordinator will ensure that participating students are intellectually equipped to tackle the design problem and will provide insight into the architectural issues raised in the Competition Brief. Coordinators will also be responsible for preparing a lecture or presentation that tackles an issue or issues raised in the Competition Brief. The lecture/presentation will be taped and archived on ArchNet and will constitute part of the background materials available to student participants.

### **11. Coordinators' Responsibilities**

- o Coordinators are responsible for equipping at least two computers with microphones and external speakers. The computers will also need to have Internet access. (High-speed access is preferable.)
- o Coordinators will be responsible for communicating with Chikako Sassa at the ArchNet central office to ensure that they are trained and proficient in use of the Elluminate VClass software, as well as the ArchNet Group Workspaces. Training sessions will take place in July and August 2003.

- o Coordinators will be responsible for familiarising themselves with the Computer Clubhouse programme, the background readings, and the site materials on ArchNet.
- o All participating students and coordinators must be registered on ArchNet as members. Pictures and brief biographies of each student and coordinator must be uploaded into their Member Profiles.
- o Coordinators must prepare a lecture and presentation addressing key issues raised in the Competition Brief and background materials, which will be recorded and archived on ArchNet for use by all of the Competition participants. This must be completed by mid-September 2003.

## ***12. Registration Deadline***

If coordinators at the five participating institutions have not facilitated the above-mentioned requirements by mid-September of 2003, they and the institutions they represent will not be eligible to participate in the Competition.

## ***13. ArchNet's Responsibilities***

Prior to commencement of the Competition, ArchNet will be responsible for the following:

- o Preparation of the Competition Brief.
- o Providing the online environment where the competition will be facilitated. It will provide each team with access to the Elluminate VClass software. In July and August, ArchNet will organise training sessions on the vClass for the coordinators.
- o Making available online the following: background reading related to the architecture of the East African coast, project examples in Mombasa, and drawings/images of the Aga Khan Academy.
- o Organising a series of lectures and presentations by MIT School of Architecture and Planning and Media Lab researchers aimed at providing participants insight into key issues inherent in the design problem. These will be recorded and archived on ArchNet.

Upon commencement of the Competition, ArchNet will be responsible for the following:

- o Live, online reviews with Charles Correa and Media Lab researchers to help guide the teams during the design process. Each school will have a designated time slot.
- o Question and answer sessions live online and by email that will help address student inquiries.
- o Organising a jury to review the submissions live and online.

## **14. Timetable**

In August 2003, Competition materials will be distributed to the coordinators. Based on these materials, coordinators will be asked to prepare a short lecture and presentation that will help guide their students. These lectures will be featured on ArchNet and will be made accessible to all participants. Lectures will have to be prepared and posted on ArchNet by mid-September.

By mid-September 2003, background materials, lectures, and presentations will be accessible in a specially designated area on ArchNet open only to Competition participants. These materials will help educate the participants and will enhance and ground the design exercise. Lectures by MIT and Media Lab researchers will make up the core of the lectures.

**Week 1:** The Computer Clubhouse Competition will be structured in two parts: a preliminary design exercise and the final competition. The preliminary exercise will be a one-week sketch problem assigned to student teams made up of 2-5 members from any level of education. At this stage, the number of teams is not limited and is only restricted by the capacity of each coordinator to manage the design exercise. The reading materials and Competition Brief will provide a range of architectural issues that are particular to the problem of designing a Computer Clubhouse in the context of East Africa as part of an existing facility. Based on these issues, coordinators will assign a sketch problem to their respective teams. The coordinator will review the sketch problems and select the two strongest teams to enter the Competition. The two selected design exercises from each school will be documented in digital format and displayed on ArchNet along with comments from the coordinator attesting to the reason for selection.

**Week 2 - 4:** Each institution will have selected two teams consisting of 2-5 members from among their design studio students to participate in the competition. During Week 2, all teams will take part in a joint lecture by Charles Correa. The rest of the week will be reserved for each team to develop their initial designs. The Computer Clubhouse Competition Group Workspace on ArchNet <<http://archnet.org/groups/CCC/forum/>> will be used extensively to facilitate communication among all participants of the Competition on a 24-hour basis. A weekly schedule for each institution will be established for Weeks 3 and 4, which will reserve time slots for each team to have a one-hour desk crit session with Charles Correa, in addition to two thirty-minute desk crit sessions with MIT professors and researchers in the fields of energy, building technology, architecture, and the Computer Clubhouse Network. The desk crits will be facilitated through Elluminate vClass software provided through the ArchNet server. The desk crits will provide opportunities for students to ask questions and receive criticism on their ongoing design solutions. Charles Correa and MIT researchers will respond to questions and offer design reviews.

**Week 5:** A jury comprising of MIT faculty and the Director of the Computer Clubhouse Network will judge all of the student presentations. Live jury deliberation sessions will be held over two days; each team will be allocated one-hour. If deemed appropriate, the winning submission will be constructed.

# Computer Clubhouse Competition 2003 Desk Crit Sessions Schedule

**NOTE:**  
All times  
denoted  
are in  
Eastern  
Standard  
Time.

September 29

September 30

October 1

October 2

October 3

Internal Charrettes / Preliminary selection of teams from each institution

October 6

October 7

October 8

October 9

October 10

10:00 am

Independent  
Working Session

Independent  
Working Session

Welcome note  
by Bill Mitchell

Charles Correa  
lecture

John Ochsendorf  
lecture

Leslie Norford  
lecture

Independent  
Working Session

Independent  
Working Session

11:30 am

October 13

October 14

October 15

October 16

October 17

10:00 am

Independent  
Working Session

MISR desk crit

LPool desk crit

ITU desk crit

AUS desk crit

MISR desk crit

LPool desk crit

UoM desk crit

AUS desk crit

ITU desk crit

UoM desk crit

Independent  
Working Session

11:20 am

12:00 pm

12:40 pm

October 20

October 21

October 22

October 23

October 24

10:00 am

MISR desk crit

ITU desk crit

UoM desk crit

AUS desk crit

LPool desk crit

ITU desk crit

AUS desk crit

MISR desk crit

LPool desk crit

UoM desk crit

Independent  
Working Session

Independent  
Working Session

12:00 pm

12:40 pm

October 27

October 28

October 29

October 30

October 31

Independent  
Working Session

Independent  
Working Session

Independent  
Working Session

Independent  
Working Session

**SUBMISSION  
DEADLINE**

## **15. Communication**

Questions regarding the logistics of the competition should be addressed in writing to the ArchNet competition coordinator at <sassa@mit.edu>. Design questions regarding the competition or charrette should be addressed in writing through live chats, e-mails, discussion threads, or document submissions on ArchNet's Group Workspace to the competition administrators. In addition, online audio correspondence through vClass will also be made available during the three-week charrette.

## **16. Deliverables**

### **Minimum requirements:**

Site plan showing the entire site including the existing school  
Elevations showing relation to existing school  
Plans showing relation to existing school  
Text and drawings explaining the design intentions at various times of the day.

### **Additional materials:**

Sketches  
Site sections showing relation to existing school  
Axonometric drawings  
Model photographs  
Details of sunscreens, verandahs, courtyards, alternative energy devices, etc.

The scale of the drawings is to be determined. The drawings should be no larger than 16" x 20" so that they can be digitized, either by a scanner or digital camera, and displayed on ArchNet for the Jury to review.

## **17. Submission of Entries**

The Competition closes at 5:00 PM Eastern Standard Time on Monday, October 27, 2003. Entries submitted online to ArchNet's Group Workspace must be time-stamped accordingly. Submissions stamped after the official date and time may not be considered at the time of jury deliberations. *Please note: Uploading your final submissions may take a very long time; please consider submitting at least 3 hours ahead of the final deadline to avoid congestion and technical miseries.*

## **18. Assessment Criteria**

The jury will be asked to take into account the following criteria:

- o Adherence to the four guiding principles of the Computer Clubhouse learning approach
- o In-depth understanding and appreciation of the site, the climate, and its effects on physical structures such as glare, heat, and humidity as they impact the equipment and learning environment
- o Creative and skillful balance of the three kinds of spaces listed in "Section II: Design Programme, 3: Design Requirements" - rooms, verandahs, and courtyard
- o Sensitive siting of the Computer Clubhouse in relation to the Aga Khan Academy that would complement and strengthen the interrelationship between the two, as well as outdoor transition spaces and the surrounding landscape

- o Comfortable balance between designing a large Clubhouse that accommodates various functions and various users, and maintaining the Clubhouse's intimate, communal quality
- o Successful integration of traditional crafts activities with use of new technologies, such as laser cutters, LCD projectors, and stand-alone workstations
- o Degree of incorporation into the life of the surrounding community, and
- o Adoption of appropriate building materials and technologies that are suitable to the region, and also effective use and apportion of outdoor and indoor spaces.

### ***19. Notification of Winners***

All participating teams will be asked to log on to ArchNet at an appointed hour to receive the Jury report on each of the submissions. A winner will be announced at that time. The designated day of the announcement is Wednesday, 29 October 2003, but this may change were the Jury Deliberations to be re-scheduled for later dates.

### ***20. Future Use of Winning Material***

The winning submission will be published online on ArchNet. One, some, or all of the designs may also be used for finalizing the fund-raising process currently under way to build a network of Clubhouses in East Africa. This process may include using all or part of the design, alone or in combination with design ideas from other winners or with ideas which may be developed later, to further develop the Computer Clubhouse in Mombasa. The winning submission may be constructed if deemed appropriate by the jury.

### ***21. Contact Information***

|             | ArchNet Central Office | MIT Media Lab      |
|-------------|------------------------|--------------------|
| Coordinator | Chikako Sassa          | Perna Sood         |
| E-mail      | sassa@mit.edu          | psood@alum.mit.edu |
| Telephone   | +1.617.452.2293        | +1.617.661.0512    |
| Facsimile   | +1.617.452.2846        | +1.617.452.2846    |

## Section II: Design Programme

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1. Introduction
  2. Background Information on Mombasa and Swahili Culture
  3. Design Requirements
  4. Design Guidelines
  5. Internet Resources
  6. Appendix 1: Laptop on the Verandah
  7. Appendix 2: The Computer Clubhouse: Technological Fluency in the Inner City
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### **1. Introduction**

This section provides detailed background information on the site, as well as a general description of the required spaces, their capacities, and their spatial relationships. Only the main program elements are listed: rooms, verandah, and courtyard. Suggested floor areas and weightages for each space are included in the Appendix: Program Areas. The list does not include other general spaces, such as washrooms, janitorial/maintenance and equipment storage space, and supply storage spaces. For this reason, the net areas given in the Appendix have been converted to a gross area for each building. These areas are provided for early guidance only; they can be modified within reason if there are design benefits to doing so. All of the program elements must be provided, but the student teams may use their collective judgment in formulating the design and appropriate mixture of the elements. In addition, a list of activities that are likely to take place within the Clubhouse is provided.

### **2. Background Information on Mombasa and Swahili Culture**

#### **Mombasa:**

Mombasa, the second largest municipality in Kenya with a population of roughly 670,000, lies four degrees south of the equator on the western flank of the Indian Ocean. Its climate is tropical, marked with high humidity, high temperature, strong ocean winds, and the intense brilliance of the midday sun that glares off lime-whitewashed stone houses. Mombasa consists of a small island, three miles long and 5.5 square miles in area, connected to the mainland by bridges and ferries. Mombasa's coastline is sheltered by a coral reef running parallel to the shore about one mile out from the high-water mark. Beaches of fine sand and gentle slope provide ideal sites for a rapidly developing hotel and cottage resort industry. Most of Mombasa sits on loose, sandy soil, but the eastern part stands on a porous coral base. Local building materials include coral, mud, wattle, thatch, and stones.

For centuries, Mombasa served as a vibrant trading center. Swahili merchants served as middlemen, exporting products from the East African interior in exchange for goods purchased from Indian Ocean merchant ships. Especially during the 19th century, Swahili caravans traveled far into the interior in search of slaves and ivory, and some of these traders established inland trading posts.

Modern shipping has taken over the long-distance ocean trade routes once traveled by dhows, the Swahili's wooden sailing vessels. Cities such as Mogadishu and Mombasa, now major industrial ports, have attracted many migrants from the East African interior. Swahili now contains many English words and has become the lingua franca of much of East Africa, spoken by more than 130 million people.

### ***East Africa and Swahili Architecture:***

Muslim areas of East Africa have traditionally been the coastal strip, which extends for over a thousand miles and includes the coasts of Somalia, Kenya, Tanzania (including Zanzibar) and northern Mozambique. This area has a homogeneous culture, known as Swahili, which is distinct from but related to both the Arabic Islamic world and the Bantu-speaking peoples of the interior.

The first documentary evidence concerning the East African coast comes from the first-century CE Periplus of the Erythraean Sea and the fourth-century geography of Ptolemy. The origins and history of Islam on the East African coast are obscure, although historical sources have been supplemented recently by information from archaeological excavations to produce at least an outline picture. Historically the earliest Islamic settlements on the coast took place during the eighth century. This has been confirmed recently by excavations at Shanga in Kenya.

The Swahili culture has traditionally been based on Indian Ocean trade with Arabia, India and the Far East and it is probable that this is how Islam arrived in East Africa rather than by conquest or a policy of colonization. Although it is likely that some Arabs and Persians may have settled on the coast, the overwhelming majority of the population had African origins as is demonstrated by the Swahili language itself which is essentially a Bantu language with many Arabic loan words. There is little documentary evidence of the early period before the arrival of the Portuguese although there are several early buildings which are dated by inscriptions. The earliest of these is a Kufic inscription in the Kizimkazi Mosque in Zanzibar dated to 1107 CE, although the mosque was rebuilt in the eighteenth century according to another inscription in the building. Other early dated monuments are in Somalia, including the Great Mosque of Mogadishu built in 1238 and the mosque of Fakhr al-Din in 1269.

Through analysis of trade goods, architectural features and local artifacts, archaeology has provided a more detailed model of how Swahili culture developed in the centuries prior to the Portuguese. In the earliest phase of settlement (eighth-ninth century) the main trading partner seemed to be the Persian Gulf; later on with the collapse of the Abbasid caliphate trade seems to be more connected with the Red Sea and ultimately Egypt. During these two early periods the towns of the Lamu archipelago such as Manda and Shanga seem to have risen in wealth and importance. Later in the thirteenth century the area around Kilwa in southern Tanzania seems to have risen rapidly in wealth and importance along with the city of Mogadishu in Somalia. This change can partly be explained through the history of local dynasties and partly through the growth of the gold trade which originated in Zimbabwe and made its way via Sofala, Kilwa, Mogadishu and Yemen to the Middle East.

In the sixteenth century the coast was opened to Europeans when the Portuguese established a base in Mombasa as part of the sea route India. For the next two hundred years until the mid-eighteenth century the Portuguese tried to control the trade of the coast against the rival claims of the Dutch and the Omanis. Whilst the rivalry of the maritime powers disrupted trade, the stability of the coastal towns was threatened by the Galla, a nomadic tribe from Somalia, who sacked and pillaged towns as far south as Mombasa. In the mid-eighteenth century the Omanis at last won the struggle for supremacy on the coast when they captured the Portuguese base of Fort Jesus in Mombasa. During the next century Omani power was extended inland and by 1852 their position

was so secure that Sultan Sayyid Said moved his capital from Muscat to Zanzibar which remained the capital until the beginning of the twentieth century.

The coast of East Africa is fairly low-lying and is fringed with extensive tracts of mangrove forests intermittently punctuated by inlets and creeks. Occasionally there are groups of islands such as at Kilwa or Lamu forming small archipelagoes and a few larger offshore islands like Zanzibar, Pemba and Mafia. The coast is protected along most of its length by substantial coral reefs, which also form the base of most of the coastal foreshore. It is important to note that all the Islamic settlements so far discovered in East Africa are within four miles of the coast and most are considerably nearer. Most sites are located slightly apart from the mainland either on peninsulas, which are cut off at high tide or on islands, although many are also located on the shores of creeks or inlets. The main form of communication was by boats with a fairly shallow draught, which could be brought in close to the shore at high tide.

The main building materials were coral, mangrove poles (barriti), coconut thatch (barissti) and mud, which were all easily available on the coast. In the absence of any other suitable form of stone on the coast coral was employed as the main building material for stone houses. Two main types were used, reef coral quarried live from the sea and fossil coral which formed the main rock underlying the coast. Usually reef coral was used for the finer decorative elements of a building whilst fossil coral was used for the walls, although there are certain variations on this. Coral was also burnt and used to make lime for plaster and mortar. Mangrove poles were the main type of timber used and were available in considerable quantities as any coastal settlement would involve the clearance of large areas of mangrove. The standard dimensions of mangrove poles are between 1.80 and 2.80m long, which imposes a maximum span on roofs without supports. Barissti or coconut palm was used as a thatch to roof mud-walled houses and to build temporary fishing shelters (bandas). Red mud earth was used either as a building material for walls in wattle-and-daub constructions or as floor make up within stone houses. In most places and at most periods throughout the coast mud wattle-and-daub constructions would have been the predominant form of construction whilst stone was only used for special purposes.

Although East Africa has been Islamic for more than 1,000 years the towns or settlements do not contain all the elements usually found in a Muslim town. There are, for example, no public baths or hammams, presumably because of the hot moist climate (although the Omanis built baths on Zanzibar in the nineteenth century). Similarly there are no suqs or open-air markets and no caravanserais or khans. Before the Portuguese period (sixteenth century) there do not seem to have been significant attempts to fortify towns with walls and there are few examples of fortified buildings before this period with the enigmatic exception of Husuni Ndogo (see Kilwa). The reasons for this are presumably connected with the maritime nature of Swahili civilization and its relative remoteness from other Muslim areas. Nevertheless the East African coast does have some outstanding examples of other Islamic building types including mosques, palaces, houses and tombs.

### **3. Design Requirements**

#### ***Dimensions***

- o The Clubhouse will be at least 180 sq.m. By contrast, existing Clubhouses range from 100 to 150 sq.m.
- o In current Clubhouses (100-150 sq.m.), 15 to 20 youth typically occupy a Clubhouse on any given day. During peak times, the number may rise to 30-35. In addition, one or two staff

members preside during regular hours, plus several "mentors" working with the youth. The Mombasa Clubhouse will cover a larger space, and will therefore accommodate more people. The challenge here lies in designing a larger space, which would accommodate more functions and more users, without diminishing the intimate, communal quality of the Clubhouse.

### ***Spatial Relationships***

- o The Clubhouse will be built adjacent to, and on the same site as, the newly built Aga Khan Academy in Kilindani, Mombasa. It is intended to supplement the school, not replace it. It will be important to consider the interrelationship between the two structures including outdoor transition space and landscape.
- o The Clubhouse should be integrated into the life of the surrounding community and serve as a model for other communities who want to develop similar facilities.

### ***Spatial Configurations***

- o Each design team will be given a "budget" of 180 sq.m. Within this budget, teams will have to meet the Program Requirements specified through a combination of enclosed rooms, verandahs and courtyards, assuming that the relative construction costs are as below:

Rooms: cost: 1.0  
Verandah: cost: 0.5  
Courtyard: cost: 0.25

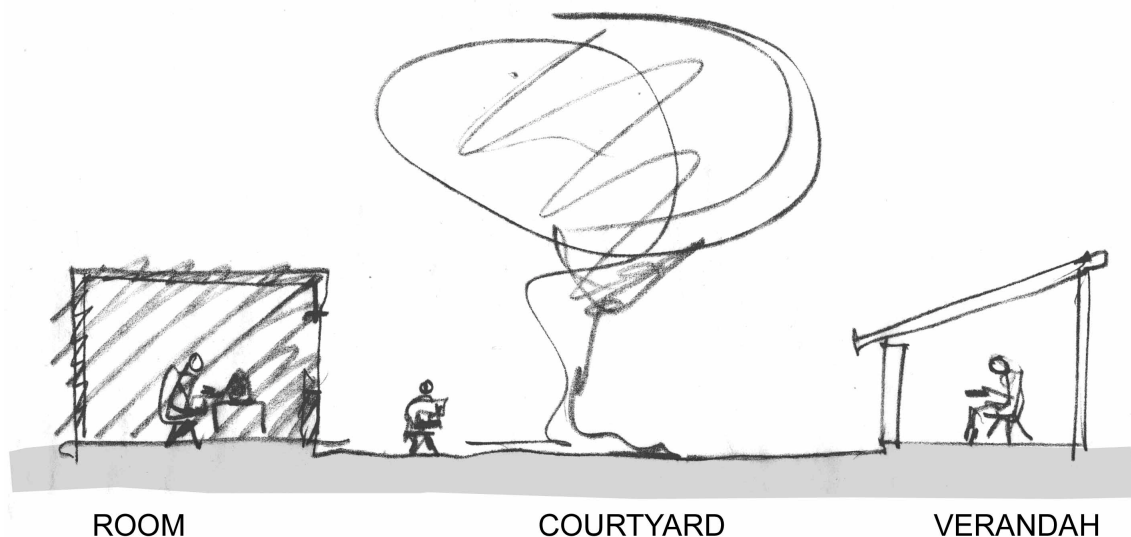


Illustration provided by Charles Correa

This means that at one extreme, a team might provide 300 sq.m. of verandah, or even 650 sq.m. of courtyard. The challenge will lie in finding the optimal combination of these 3 basic types of spaces: room, verandah, and courtyard.

### ***Area Program***

The following net floor areas are provided for guidance only as a starting point. Adjustments can be made to accommodate each design team. The table does not include other general

spaces, such as janitorial/maintenance, equipment storage, and supply storage spaces. For this reason, the net areas given in the Appendix have been converted to a gross area for each building. In addition, space for toilets, storage, and office space should be considered. An office for the Clubhouse Coordinator, and perhaps separate office spaces for the "mentors", would be ideal

|                           | Net Area (sq.m.)  | Equivalent Area (sq.m.) |
|---------------------------|-------------------|-------------------------|
| <b>COMPUTER CLUBHOUSE</b> |                   |                         |
| Main Computer Room        |                   |                         |
| Audio Lab                 |                   |                         |
| Fabrication Lab           |                   |                         |
| Crafts Room               |                   |                         |
| Wood Working Room         |                   |                         |
| Staff Rooms               |                   |                         |
| Administrative Office     |                   |                         |
| Restrooms                 |                   |                         |
| <b>VERANDAH</b>           |                   |                         |
|                           | <i>Total Area</i> | 180 sq. m               |

#### 4. Design Guidelines

##### Users

- o Young people from ages 10-18 are the primary audience for the Clubhouse. The Clubhouse facility should also be open and accessible to others in the community (and/or groups from the school) during designated hours.
- o The facility should be open to adults for classes, workshops, and other activities in the evenings. Thus, the facility needs to accommodate different populations at different times of the day – but all activities for all populations should be based on the Clubhouse guiding principles.
- o Neighboring school communities also will have access to the facilities while the Aga Khan Academy is in session.
- o Students will be allowed to drop in during school hours, provided their instructors give them permission. Faculty members can schedule classroom activities in the Clubhouse during school hours to integrate the facilities into their core curricula.

##### User Activities

- o Despite its first name, the Computer Clubhouse should not be limited to computers. It should also provide a wide variety of traditional tools (hammers, saws, needles, adhesives, etc.) and materials (wood, fabrics, canvas, paint, etc.), enabling youth to combine traditional arts/crafts activities with new digital explorations.
- o Where appropriate, the Clubhouse should make use of the latest computing, communications, and fabrication technologies, such as laser cutters, digital cameras, scanners, printers, plotters, and other such machinery.

- o The Clubhouse should include facilities for music composition (with acoustic isolation), video production, theater performances, and space for display and exhibition of youth projects.
- o In summary, activities and programmes that will take place within the Clubhouse include (but are not limited to) the following.
  - o Graphic design
  - o Computer programming
  - o Model making (digital and analog)
  - o Video editing
  - o Sound editing
  - o Traditional Arts and crafts
  - o Wood-working
  - o Fabrication activities (using laser cutters, etc.)

Some of the activities, such as sound editing, may require separate rooms or spaces. A unique challenge here is to integrate traditional crafts activities with use of new technologies, such as laser cutters, LCD projectors, and stand-alone workstations. Traditional tools, materials, and equipment could be placed in a separate room, or integrated into the same space as computers and other machine tools.

### ***Technological Innovations***

- o Wireless laptop technology provides better responsiveness to climactic elements of Mombasa and opens up the use of outdoor space and verandahs as teaching and working spaces. Teams will have the opportunity to rethink the structure of space and activity in the Computer Clubhouse operates, reflecting new wireless and mobile technologies. The use of outdoor and transition spaces should be explored and encouraged. *\*Please refer to Appendix 1.*
- o The use of alternative energy sources and the architectural implications of such sources should be explored. The design of the Clubhouse should be an exercise of innovation.

### ***Additional Guidelines***

- o Security and accessibility issues must be given serious consideration.
- o Design submissions should reflect an in-depth understanding of the site, the climate and its effects on physical structures, glare, heat, and humidity as it impacts on the equipment and learning environment.
- o The winning design will adopt appropriate building materials and technologies, which are suitable to the region.
- o The design for the Clubhouse should be resonant with the four guiding principles of the Computer Clubhouse learning approach. An approximate gross floor area is also given, based on a factor of 1.75 times net area

#### **4. Internet Resources**

Images and examples of architecture projects in Mombasa

[http://archnet.org/library/places/one-place.tcl?place\\_id=1938](http://archnet.org/library/places/one-place.tcl?place_id=1938)

Brief History of the East African Coast

<http://archnet.org/groups/CCC/file-storage/file.tcl?inode=64158>

Laptop on the Verandah

<http://archnet.org/groups/CCC/file-storage/file.tcl?inode=64153>

The Computer Clubhouse: Technological Fluency in the Inner City

<http://archnet.org/groups/CCC/file-storage/file.tcl?inode=64320>

ArchNet:

<http://archnet.org/>

Intel website on Computer Clubhouse project:

<http://www.intel.com/education/icc/>

Computer Clubhouse website:

<http://www.computerclubhouse.org/>

<http://web.media.mit.edu/~mres/clubhouse/research.html>

Press coverage of Computer Clubhouse project:

<http://web.media.mit.edu/~mres/press/clubhouse-nytimes.htm>

<http://news.bbc.co.uk/1/hi/technology/2151433.stm>

<http://www.cnn.com/2002/TECH/science/07/04/coolsc.computerclub/index.html>

[http://www.sacobserver.com/community/121101/intel\\_clubhouse.htm](http://www.sacobserver.com/community/121101/intel_clubhouse.htm)

Aga Khan Development Network:

<http://akdn.org/>

Aga Khan Education Services

<http://akdn.org/agency/akes.html>