

The Revitalization of an Atlanta Neighborhood: A Shared Design Experience

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INTRODUCTION

The adoption of strategic measures towards the practice of sustainability is presently endemic to many sectors of the industry. This permeation has been driven by moral and economic reasons to achieve better efficiency and conservation of our natural resources without compromising the comfort, health and safety of people. More than a buzzword, sustainability implies a concrete reexamination of the way daily practices are engaged in the pursuit of our well being, and a characterization of who we are as humans being constantly challenged by ethical choices.

The promises of sustainable development can be fulfilled through active participation of every sector of our social and economic life. Lucrative businesses are emerging out of the fast-growing and needed industries working towards sustainable development. A large number of commercial businesses and institutions are now operating within frameworks derived from the concept of sustainability. This new course of events has brought many institutions to promote research and academic units with special emphasis on aspects of sustainability. Among them, the Architecture Programs are now acquainting future generations of architects with design and construction processes fit for sustainable buildings and communities. However, this training must be connected with the larger issue of sustainability as it relates to the social, cultural and economic welfare of communities.

This paper elaborates upon the various exigencies of sustainability in shaping the design and planning of the Carver Hills Community Center at Atlanta, Georgia. First, the socio-cultural and physical determinants that have raised the consciousness of the community are introduced, along with the remedies brought to the precarious conditions to save the neighborhood from total dilapidation, and convert it into a sustainable environment. Second, the participatory design process that took place involving interaction between students from Georgia Tech, the University of Georgia and the community members is examined in order to probe the learning gained from this experience, specifically the students' reactive stance in terms of design response after they have been fully informed on the environmental threats that have impacted this community for quite some time. Third, the reasoning developed in the crafting of the design problem issued to the third year architecture studio at Georgia Tech will be detailed with respect to program development, procedure and objectives assigned. Exemplars of students' work from both institutions will illustrate the considered issues of sustainability and ecology. This paper will conclude with lessons learned throughout the conduct of this operation.

COMMUNITY PROJECT DESCRIPTION

I have endeavored to put together, and teach easily with words

and figures, all these things that seemed to me most necessary, and most important for building well...that they may in themselves contain beauty, and be of credit and conveniency to the owners.

– Andrea Palladio, Architect - 1570

Historical Context: The decline and rebirth of Carver Hills The fracturing of Carver Hills Neighborhood

In 1957, Carver Hills was built. It comprises 344 modestly kept one-family working class or retirement homes with simple front yards. The inhabitants are mostly African-Americans. With their low income means, they managed to keep the neighborhood in fairly good condition, as opposed to the surrounding concentration of highly deteriorated government and subsidized public apartments. The retired elderly make up the majority of the 2000 residents in this neighborhood (approximately 60%.) The rest of the population combines 500 working class adults and about 300 children and young adults.

Carver Hills sits in the Proctor Creek basin and constantly confronts, with many neighboring communities, health hazards emanating from the combined overflows of raw sewage and rain water that run into the creek. It must be noted that only recently have plans been developed to renovate the presently inefficient sewer system of the city, and eliminate altogether these unsanitary conditions. But the environmental conditions became worse when, in 1962, the City of Atlanta decided to build the Gun Club Landfill that stood just across Proctor Creek, and directly facing the homes and Finch Elementary School at Carver Hills. However, the advent of these nefarious conditions did not deter the residents, and most of them remained in the community (80%), although they had to face further hardship. The Finch Elementary School was first closed down, then used for military training, and finally demolished in 1991. For years, the school represented an important common interactive focus for the community. To this end, this demolition, added to other exacerbating factors, effectively deepened the fracturing of the neighborhood.

Environmental Threats and the Closing of the Gun Club Landfill

The Gun Club Landfill is located on the opposite side of Proctor Creek from the Carver Hills neighborhood. The landfill occupies an area of 180 acres of which 110 acres were licensed for dumping. In 1965 the first dumping began and in 1974 it became a municipal landfill.

Regularly, 890 tons of trash a day were thrown, which caused the landfill to reach a height of 23 stories of layered household solid waste (garbage, trash, leaves, paper, and yard waste) and soil. All the exposed debris and refuse, blown towards the community, generated

unsanitary conditions, and pollution that is thought to have contributed to an increase in health problems in the community. According to Dr. Olin M. Ivey,¹ “for two years, an informal survey was done in which 2 deaths a month were occurring in the community that could not be explained by family history – deaths from such things as cancers, skin lesions, and respiratory illnesses.”

In the face of these encountered environmental and social injustices resulting from the neighboring, city-owned Gun Club Landfill, and with hopes of mobilizing community residents as well as improving poor environmental conditions, the Carver Hills Neighborhood Association, Inc. (CHNA) emerged. The Department of Public Works tried to bury the issue rather than listen to the grief of the community and their pleas to close the Gun Club Landfill. Being already one of Atlanta’s largest receptacles of garbage, the CHNA organized against Atlanta’s plans to further expand the landfill, reaching even across Proctor Creek. Despite the resistance of the Department of Public Works, the Carver Hills Neighborhood Association marshaled a strong campaign for the closing of the landfill. Regular monthly meetings were held to inform the neighborhood residents of the threats they were experiencing and develop strategies to do away with them. After a few unsuccessful efforts, they finally managed to have the City Council pass an ordinance to close the landfill in December 1992. Quoting Olin Ivey²: “The unexplained deaths ended with this closure.” The success of this operation motivated the CHNA representatives to turn inward and further seek the residents’ collective effort to create movement towards achieving a sustainable community.

Master Plan and Rejuvenation Program for Carver Hills

The CHNA enlisted the services of Professor Allan D. Stovall from the University of Georgia School of Environmental Design to conceptualize a rejuvenation program for the neighborhood. Professor Stovall³ developed a set of guiding design objectives for his graduate students to pursue in the design of the Carver Hills master plan: 1) Provide educational/recreational opportunity for all ages; Park -former location of Finch Elementary School- as focal point for neighborhood, 2) Promote sense of neighborhood pride and identity, 3) Provide for convenience and safety of residents, 4) Protect, enhance natural systems and overall environmental quality.

The master plan for the rejuvenation of the entire community extends from the old Finch school site to the four community entrances, from the eroding banks and polluted waters of Proctor Creek to the Saporta property downstream. Following many exchanges with the residents, and assessment of Carver Hills urban setting, the students began to identify the main features that characterized this neighborhood. Figures 1(a), 1(b) and 2(a) show different proposals which describe each team of students perception regarding the salient aspects of the neighborhood’s urban fabric, and, their

broad urban planning interventions mediating the transformation of the neighborhood into a communal green space.

In summary, making the old Finch school the focal social/recreational area, they also included a community compost pile and recycling program. Along Proctor Creek itself, the bank was dedicated to multi-use (walking/biking) nature trails which connect the old Finch school lot to the Saporta property further downstream. The 1.3 acre Saporta property was converted to a multi-use area of nature trails, compost areas, natural gardens, wilderness areas.

Several sketches were drawn to distinguish the four main entrances in order to clearly demarcate the identity of the neighborhood. For instance, the entry pavilions were purveyed with booths to direct visitors to the main community area. The unsightly landfill was grassed and assigned for large scale public art exhibitions or photovoltaic solar collection panels. Green buffer zones were established to hide from view the rundown adjacent housing developments. The arteries leading from the entrances were enhanced via layout and refinement of paved sidewalks, landscape, tree planting, bus shelters and park benches. The connection of the neighborhood to the city was facilitated by the creation of a greenway corridor. The few remaining vacant lots throughout the neighborhood were assigned to Christmas tree farms, nursery, nature gardens/trails, and small children playgrounds. It was also recommended that the area overtaken by kudzu growth be replaced with native vegetation.

Master Plan for a Social/Recreational Community Area

The students from the University of Georgia then shifted their focus to develop a master plan for the communal park. Figure 2(b) shows the land acquired to hold the social/recreational activities. It must be noted that the small square with heavy dashed line represents the site assigned to the Georgia Tech students for the design of the Community Center. As indicated before, the land formerly containing the Finch Elementary School has now been assigned to a social/recreational area. There exists a retaining wall (14 feet high) running north-south across the site and a reinforced concrete platform formerly used for access to the Old Finch Elementary School which has been torn down. Next to the platform and on the east side, is the old school parking that is currently barely perceptible. From the analytical studies conducted which lead to various site concepts (an example of which is shown in figure 2(c)), the primary endeavor was to restore the ecology of the river by bringing back wildlife diversity and native vegetation. The intention was to reclaim the leisure and relaxation activities that the creek used to provide for the residents. Being a focal point as well as an escape environment, this park also brought to front the question of its visual relationship to the landfill and to the decaying neighboring homes. Finally, this phase culminated into the development of a number of master plans. Three of them are discussed below.

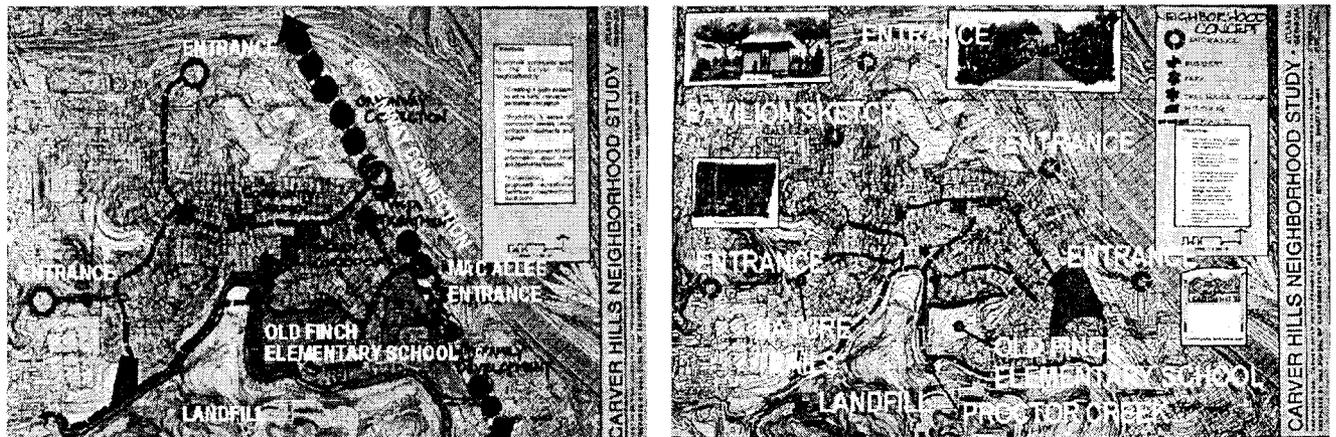


Fig. 1. (a) Neighborhood Study I, (b) Neighborhood Study 2, Carver Hills, Atlanta (Authors: Environmental Design Student Team, the University of Georgia).

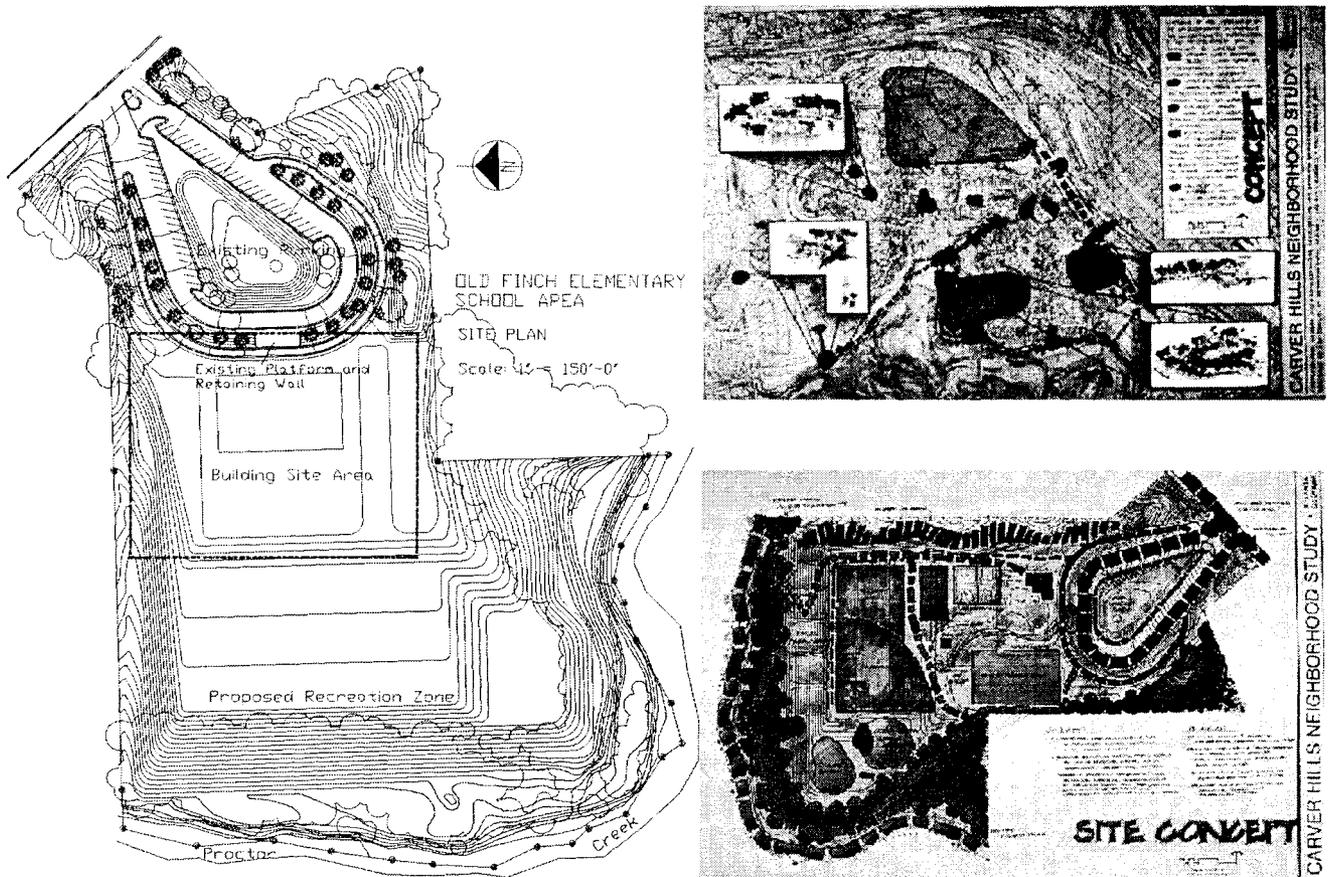


Fig. 1. (a) Neighborhood Study1, (b) Neighborhood Study2, Carver Hills, Atlanta (Authors: Environmental Design Student Team, the University of Georgia).

In the Proposed Master Plan 1 in figure 3(a), the intent was to create an attractive entrance to the community park, used to better identify the community center location in the neighborhood as well as to discourage after hours access to the site. The entrance incorporates a water garden in addition to a granite garden which was created by removing the topsoil inside the existing carpark, and exposing the granite outcrop underneath for picnicking and education.

The multipurpose community center banked against the existing retaining wall is split into two separate wings surrounding an outdoor amphitheater. Extending towards the west, and to the side of each wing are respectively two basketball/volleyball courts and two tennis courts. Contiguous to these courts is the football field with a small parking area dedicated to coaches private vehicles. Located on the side of the northern wing of the community center is a playground featuring a tot-lot for younger children playing under supervision. On remaining foundations from the old schools, a new play structure is erected for older children. A picnic grove was laid out for passive recreation such as picnicking and watching games that are going on in the field(s).

On the northern side of the site where the existing gully channels the storm water runoff is proposed the construction of wetlands. A series of shallow check dams will slow down the water, and the incorporated wetland vegetation will reduce the pollutant content in the water. It is suggested that reeds and grasses provide a high surface area for micro-organisms that break down organic pollutants; furthermore, the reeds and grass in the wetland can be harvested and used for compost to be sold at the nursery. The cleaned water will then be used to irrigate the playing fields, the planned terraced community gardens and other vegetation on site, or discharged directly into Proctor Creek where it will improve the water quality.

The presence of these wetlands on the site will also act to increase wildlife diversity. As the soil with high organic content builds up

along walls of the checkdams, it can be periodically removed and sold as topsoil or potting mix. On the south side and next to the football field, a retail nursery for agricultural plots and plants borders Proctor Creek and will act as buffer between the Carver Hills community and the poorly maintained apartments on the existing Mac Allee entrance. In addition it will provide a sustainable economic development for the community. With the nursery, a maintenance area is included for storage of equipment, machinery and materials. On the west side of the site, near Proctor Creek, three greenhouses surrounded by terraced gardens are erected to grow vegetables, herbs, and plants for the nursery. Finally, a walking trail, along Proctor Creek bank and looping the site links the proposed nature path along the creek corridor.

The proposed Master Plan 2 in figure 3(b) is similar in its organization to the previous one with some differences. The old carpark holds now a public market place. The picnic area was moved nearby the main entry and towards the south side. On the north side of the site a green zone of native vegetation shields the site from the gully, and the less than desirable quality of the neighboring homes. A formal entry leads into the community center, similarly split into two wings, with the amphitheater and outdoor classroom shifted towards the south side of the site and near the nature center. Towards the west, compost areas and native vegetation bordering Proctor Creek are established. Finally, few scattered pavilions and park benches are to be built out of recycled material.

STUDIO PROJECT: THE CARVER HILLS COMMUNITY CENTER Project Description and Objectives

The Carver Hills Neighborhood Association (CHNA) in partnership



Fig 3: (a) Proposed Master Plan 1, (b) Master Plan 2 (Authors: Environmental Design Team, *University of Georgia*)

with the Georgia Environmental Organization (GEO), also, invited the Georgia Tech College of Architecture to take part in this revitalization project by specifically designing the building to become the Community Center.

This project was assigned to four studio sections of third year undergraduate architecture students at Georgia Tech. Professors Dale Durfee, Kemp Mooney, Stuart Romm and the author each taught a studio section. The review of the proposed master plans clearly gave the teaching faculty the premonition to decide on the area nearby the platform as the potential location of the community center which excluded all outdoor activities except a children's playground (figure 2(b).) However, enough flexibility was afforded to students to speculate, within assigned boundaries, on the potential layout and placement of the building. The restoration of the old existing parking was viewed as a better resource conservation strategy.

After meeting with the CHNA and GEO representatives and listening to them explain the needs of the community, the teaching faculty introduced the students to the purpose of this project, of which a summary is produced below: The community center is expected to serve as a focal point for the entire Carver Hills Neighborhood. Established for multi-use learning, the center is planned to be a marketplace for community information, and for activities of a cultural and recreational type. It is a place suitable for the elderly, the adult, the youth and the child to gather, find moments of communication, participate in the life of the community, as well as learn from each other. The center shall constitute the vehicle by which to promote social revitalization of the community with the plan to encourage younger families to remain at Carver Hills by catering to their needs such as the provision of a daycare center. The youth generation shall be considered as a crucial segment of the population, soon becoming the next residents; after school programs of academic, cultural, social and recreational purpose shall be planned to keep them off the street, prevent crime, and increase their interest in Carver Hills as a viable place to raise a future family. The geriatric population also constitutes a large proportion of the Carver Hills residents. As such, some activities shall be programmed within the center to enhance their leisure and social activities. At the same time, the center should become a conducive environment for the elderly to participate in the daytime care of children.

The community is primarily concerned with the quality of the environment and anticipates the center will become a shining example of sustainability for other communities to emulate. To achieve this goal, CHNA wishes to incorporate in this program cutting-edge environmental and energy-conserving technologies in order to make the building as self-sufficient as possible.

BUILDING PROGRAM DELIBERATION AND COLLABORATIVE PROCESS

The issue of sustainability began in our mind with the programmatic

strategies that needed to be implemented for the community center in order to insure the community development in terms of social and cultural harmony. The residents were classified under four categories: the elderly, the general population, the youth and the children. For the general population, a multipurpose community room was to host a variety of activities and meetings of recreational and social content, with a media facility room and craft studios for skills development. Three age groups of children were considered in the planning of the daycare center: toddlers, age 2-5 and age 6-11. Three large rooms were programmed to each receive one group, while a large multipurpose room and an outdoor playground was to bring them together for interaction. The elderly needed a day room as a social gathering space for games, quilting, reading and TV watching, as well as a care and exam room to monitor their health conditions. As for the youth segment of the population, a recreation room, containing pool tables, vending machines, etc., was to be flexible enough to hold various social, cultural and entertainment activities. Incorporated into the youth quarter, a laboratory/classroom, two photo-labs and a room for ongoing projects were judged sufficient to hold after school program activities.

The design process was initiated with a series of lecture presentations related to the purpose of this project. Naturally, the teaching faculty invited Professor Stovall to give Georgia Tech students a presentation on the various schemes that were proposed in his class. Since our project dealt strictly with the building for the community center, the discussion mainly centered on the various locations and massing proposed for the community center. In addition, the teaching faculty organized meetings between the community residents and the Georgia Tech students for the latter to obtain first hand answers to their questions and establish a better understanding of who their clients were. The students enthusiasm was high because of the sense of purpose and mission that they inherited dealing with this project, which they considered as reality based. The students quickly established the linkage with the social dimension of architecture as an important aspect to reckon with in the design process. This new stance came as a direct result of their interaction with the community. Parallel to these gatherings with the community, the students conducted numerous site reconnaissances to gather information and reach a better feel for the place. The direct exposure to the community's genuine concerns, and at the same time, the residents' willingness to engage in the very speculative process of the design studio, enriched the students design approach far beyond what they used to apply towards hypothetical design problems.

This time, the design challenge was real, including non-fictional clients to work with. As such, the design responses to the long term sustainability of the community center, had to be concrete and feasible solutions. Despite some technical difficulties that sustainability induced, their interest in learning about the meanings and implications of sustainability in architecture remained high. As the

design process took its course, the community members often visited the studio and participated in jury reviews to give feedback for each phase of the design, beginning with the conceptual design formulations to the final layout of the community center. Although, the study and final models proved to be more tangible to the community representatives, the drawings also remained a valuable source of information.

Students' Projects Summary Review

In the variety of designs that emerged from the studio, the author selected three of them for the purpose of illustrating the students attention to architectural aspects that went beyond pure form making. In the first design shown in figure 4(a) the main concern was economy, therefore the massing and the general form of the building was made compact in order to reduce the cost per square foot, for the simplicity of form generates the simplicity of detail and construction assembly. The main access is located along this axis. The visitor arrives from the north into an open court, circular in shape to emphasize its communal character, and lends at the steps of the main entrance which opens into a two story high main lobby/atrium space that provides enough north light and supplemental zenithal light. By virtue of its location, the lobby/atrium space becomes a communal as well as a serving space. The set up for the circulation activities, as people move from floor to floor or from compartment (children) to compartment (elderly), is expected to encourage interaction, at least a visual one. The axis shift to the east/west direction on the second floor is adopted to emphasize the procession from the platform to the views offered towards the wilderness area along Proctor Creek.

Supplemental daylight was delivered through skylights to supply additional southern light for space facing north and minimize electrical consumption. The secondary entrance from the platform is mainly reserved for the youth access.

This arrangement works adequately to protect the remaining spaces from the high noise level expected in the youth quarter. Adjacent to the south side of the building is placed the outdoor amphitheater. The south wall shading system is also utilized to partially shade the stage (figure 4(c).) The primary steel structure is clad with stressed skin panels. For durability and easy cleaning, ceramic tiles are used for the building surfaces while sandstone is applied for the outside walls.

With regard to the building heating and cooling, geothermal heat pumps were selected because of their high efficiency for the local climate of Atlanta, with the return air occurring in the plenum above the first floor. Water heat pumps work better with low scale buildings and small thermal zones because of the ability to prevent excessively long water coils installed below ground for heat exchange through earth contact. In this design, the building, split into three thermal zones (figure 4(c)), could afford the installment of heat pumps since wide open adjacent fields were available.

The next design gives clear predominance to the axis connecting the gate entrance to the wilderness area near Proctor Creek and passing through the platform (figure 5(a).) The spatial translation consists of a sequence of nodes along a main spine that cuts through both the first and the second floor. Though the building appears of complex formal vocabulary achieved through grids collision, essentially, the narrow shape of the rectangles interlocked with the spine,

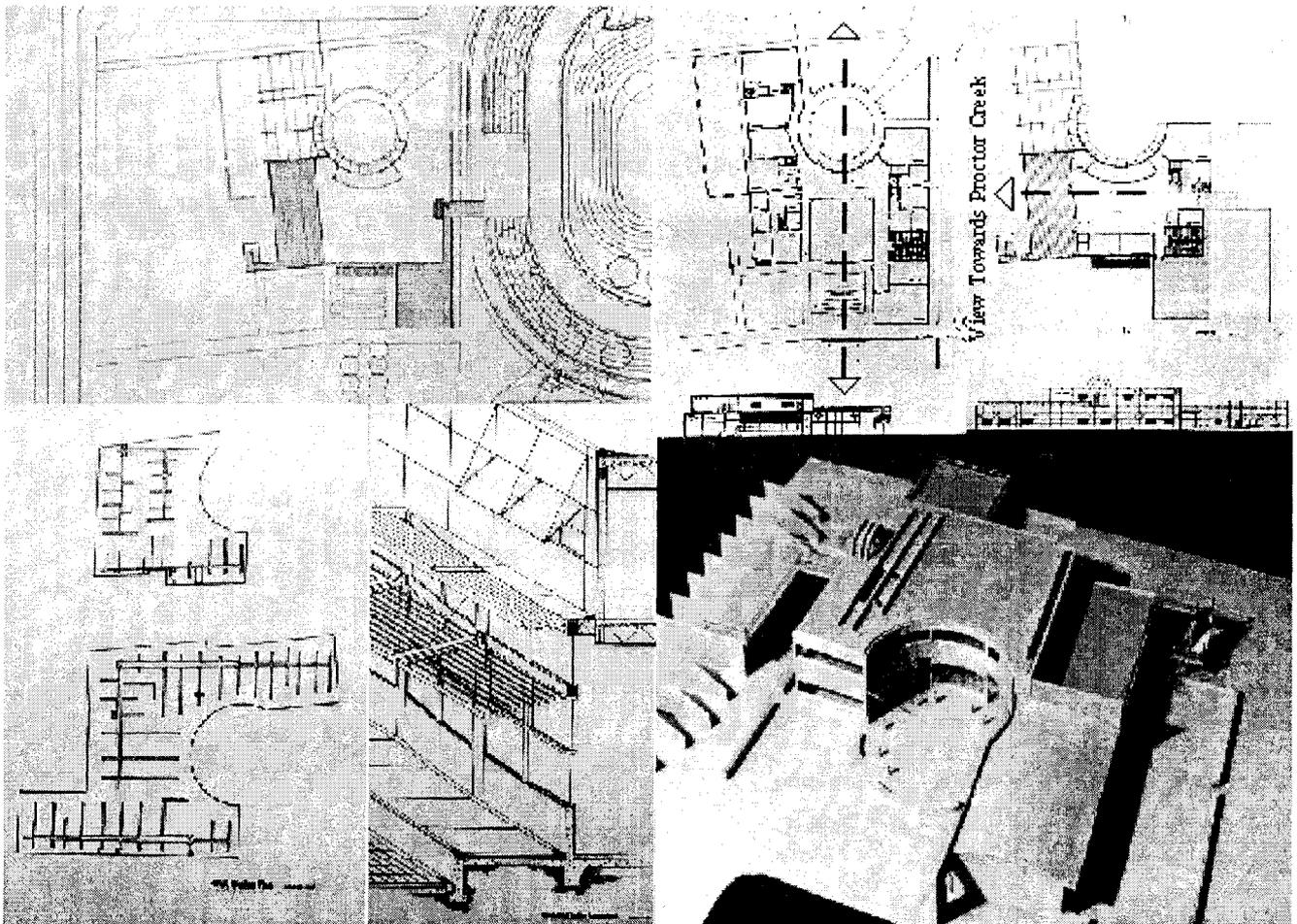


Fig. 4. Community Center I, (a) Site Plan, (b) First and Second Floor Plans, (c) Duct Layout and South Wall Shading Detail, (d) Building Model (Young Joon Lee, 3rd Arch. Student, Georgia Tech.

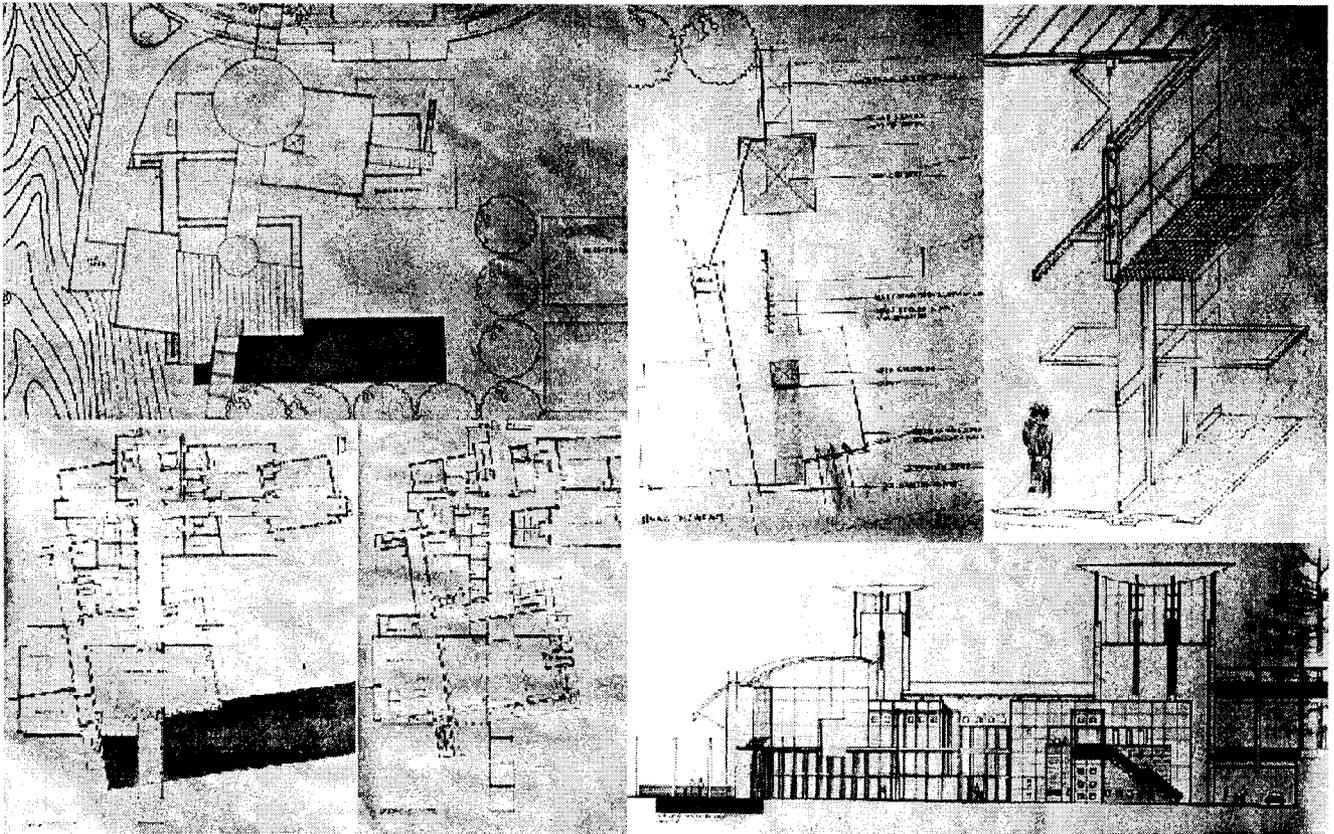


Fig. 5. (a) Community Center2, Site Plan, (b) First and Second Floors, (c) South Wall Section and Shading Detail, (d) South Elevation (Stephen Parris, Third Year Student, Georgia Tech.

and from which the final building composition was derived, offers better building form predisposition for natural ventilation. And, the two nodes within the spine represent scoop towers which will be discussed later.

Similar to the previous design, the community area is located at the ground level, along with the daycare center to allow easier drop off of the children and immediate access to the outdoor playground (figure 5(b).) On the second floor, the platform facilitates the elderly's access to their quarters located near the entrance. The second floor also holds the youth activities with the noisy spaces shifted further down and towards the west so as to isolate them from those of the elderly.

In this project the principles of natural ventilation for cooling purposes and moisture removal were emphasized by strategically making use of two scoop towers (figure 5(c).) Air swept over a cooling pond enters the building through windows, and as the prevailing heat is picked up, it rises to escape through the chimneys. On the roof of the main spine, water heaters were installed to collect and store hot water. The south facades include shading device systems to protect the building from the harsh summer sun (figure 5(c).)

Comparably, the third project in figure 6(a) was conceived upon the notion that a community is a group of individuals with different ideas, cultures and age category. The intent was to integrate these categories of people to harness interaction and give an identity to the Carver Hills community. This scheme proposes as a focal point a free flowing two story high communal space, loosely defined by narrow masonry walls and flanked on the north and south sides by the other support spaces (figure 6(b).) The building massing setup gives visual dominance to this core space by enclosing it with a canopy like roof that rises, at its north and south ends, higher than the one enclosing the support spaces. The shift in roof height created, therefore, a north and a south clearstory to allow deep light penetra-

tion into the communal space (figure 6(a).)

To promote interaction, views from the other compartments give directly into the communal space, while the catwalks bridging the two wings heighten the feeling of interaction and liveliness. Based on a simple regulating rationale, this design achieves high aesthetic standards utilizing low construction technology such as masonry, steel. The structural system consists of braced steel columns supporting open web joists at the second floor. The structure is concealed within walls and the roof is also supported by steel trusses. As with the two other projects, shading was given special consideration to prevent overheating and summer glare. The examination of the HVAC systems layout naturally produced three main thermal zones: the core space and the two wings. Additional zoning was determined for the children's area because of differences in orientation and the additional care required by the toddlers.

LESSONS LEARNED

Projects based on reality provide students with the best insights into the practice of their profession. Not only do they have the opportunity to learn about the design issues that matter most to the residents, but also, to recognize the complex set of systems underlying the development of a realizable design solution. In retrospect, this partnership with the community galvanized the interest of the students in engaging an architecture driven by social and environmental concerns to which proper technological responses could be found. Thus the issue of sustainability became a critical issue as they learned first hand the real concerns of the residents. For instance, the choice of construction materials was not arbitrary but the result of critical inquiry into the energy embodied in them and their recycling potential. The students grew to comprehend the value of nature and that of green architecture as they strove to apply

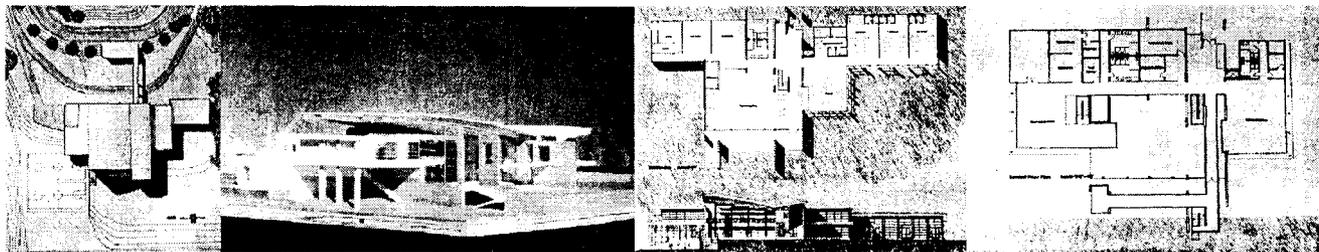


Fig 6. (a) Community Center 3, Site Plan and North West Elevation (Model), (b) 1st and 2nd Floors (John Trefry, Third Year Architecture Student, Georgia Tech).

various active and passive environmental controls to minimize energy consumption, and prevent space overheating through adequate shading devices. In the application of the heating, cooling and ventilation they realized the role of energy efficiency in choosing the type of appropriate equipment, such as heat pump versus packaged terminal air conditioning units, and deciding on the space distribution of thermal zones. All of these issues were implemented along with the social experiencing of the space with the intent to provide constant communal interaction and development. The realm of design intervention was expanded and simulated that of the professional, due to the identification of real client, real context and real problems. In summary, this experience proved quite successful, as reflected in the enthusiasm and positive comments expressed by the local residents on being shown the final display of students' projects held at Carver Hills. It was certainly a refreshing way to administer a design problem in that it was non-hypothetical, shifting the students attention to the demands society will make of them as future professionals.

Achieving a sustainable development has proven feasible only when a community is quite persistent and aware of the threats and opportunities that exist, which can either erode or enhance the living conditions in their neighborhood. The CHNA representatives were clever in rallying the support of many organizations like the GEO which are interested in helping communities help themselves. They were able to empower the community residents to increase the awareness of the city government and its citizens in regard to problems of health and environment as they impact the community. They trained the citizens of the community in the process of critical thinking to identify problems and the means to solve them. Furthermore, their partnership with academia was part of the grand strategy that the CHNA and GEO devised to meet their objectives. In addition to the technical advice gained, they are now armed with the designs of the community center and the master plan for the revitalization of the neighborhood to start their fundraising campaign for the realization of these projects.

From a pedagogical standpoint, however, a few key improvements might be made towards a more effective approach to the consideration of sustainability in architectural design. First, a project of this magnitude required a much longer time allotment than originally assigned (six weeks.) The sum of issues implicated in this design were too numerous to resolve in few weeks. Therefore, a less constraining project in term of space planning would have eased the way to better management and thorough investigation of the various issues of sustainability.

The challenge to provide decent living conditions for the under-

privileged, combined with care and attention paid to the environment, has been central to the endeavors of those engaged in design from both institutions. By inference, this operation and others to come will further promote the irreversible course of making sustainability a more effective component of the architectural curriculum.

NOTES

- ¹ Data supplied by the Georgia Environmental Organization(GEOdyssey), Atlanta, Georgia. Dr. Olin M. Ivey is Executive Director of GEOdyssey.
- ² Ibid.
- ³ Allen D. Stovall, FASLA is Professor and Director of Development at the School of Environmental Design at the University of Georgia. I wish to thank him for providing me with slides documenting the first phase of the Carver Hills urban study done by his class of graduate students at the University of Georgia.

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