escuela caribe
jarabacoa, dominican republic

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Background and History of Project

Escuela Caribe is a branch of New Horizons, an organization that is geared toward rehabilitation of troubled American youth. New Horizons has been in operation for seven years and is based out of Grand Rapids, Michigan, although the programs are scattered throughout the States and into the Caribbean. The organization is licensed as a child care organization in the States and must comply with all standards (both in terms of physical amenities and program) that licensing requires. (see appendix)

Description of Client's Program

Escuela Caribe's program involves a live-in situation in a different culture and environment that emphasizes a balance between emotional, mental, spiritual, physical, and intellectual growth for American children between 14 and 18. During the students stay in the West Indies, the parents receive counseling in the States. The students are reintegrated back into American society after their stay of 7 - 12 months through a half-way program. A more specific description can be found in the appendix which is the Client's own explanation.

Scope of the Project

The Thesis Project will be involved in the design of the physical and social environment at the site near Jarabacoa. It requires living accommodations for a minimum of 32 students and 16 staff as well as recreational, educational, administrative and chapel facilities. All facilities are to be used exclusively by students and staff except for the educational facilities and the chapel which will be open to the local population on a semi-limited basis (i.e. when the facility is open and staffed).

Other local interaction on the site is through the women who do laundry for Escuela Caribe.

The program is relatively self-sufficient and self-reliant. An increase is not anticipated in staff or student population, although they would like to increase their narrow physical boundaries by purchasing an adjacent site when available. The educational facilities should allow for possible future expansion.
Reason for Choosing Project

While in Europe, I became acquainted with several people who impressed me greatly. Not only were they very talented but they also were willing to give of that talent to a culture and society that needed it more than the culture and society that nurtured and educated them.

Through their indirect influence I began to consider practicing in a undeveloped country. What the future has to unfold is yet unknown but the choice of a project located outside the borders of the United States is a direct reflection of the impact of their lives.

Reasons for using Escuela Caribe as a Thesis Project are as follows:

1. Location in Dominican Republic
   a. relatively underdeveloped
   b. use of metric
   c. different language and culture
   d. different climatic and topography conditions to deal with

2. Client's program
   a. vaguely acquainted with operations of the organization through a staff
   b. opportunity to incorporate psychological and social concepts to physical design
   c. program is very positive and quite successful

Site Location

The Dominican Republic is located in the West Indies, southeast of the tip of Florida. It lies between the 16th and 20th degree latitude line on an island that is shared by Haiti. Haiti is different culturally and economically. It is French-speaking, very poor, and overpopulated. The Dominican Republic on the other hand is more prosperous and has a lower density of population. Although the population consists mainly of mulattos, the language spoken is Spanish and the cultural ties are definitely European.

The population of the Dominican Republic is 3,000,000 people and is contained in 19,333 square miles. By comparison Indiana’s population of 4,750,000 is spread over 36,290 square miles.

Density:
   D.R. 155 persons/sq. mi.
   Ind. 131 persons/sq. mi.
Most of the population is comprised of self-sufficient peasants, cash exchange not being the major means of obtaining the necessities.

However small, the climate of the Dominican Republic lends to be erratic due to the drastic topography changes which vary from 150 feet below sea level (Enriquillo Depression) to 10,000 feet above sea level (Cordillera Central). In general, the Dominican Republic enjoys perpetual summer condition although it can dip below freezing in the highlands. The trade winds blow from the northwest and bring the threat of hurricanes to the coatal areas between July and October. The inland is affected by downpours during these months. The inland rainy seasons occur in May and October.

Within relatively short distances the landscape will change from desert to jungle, savanna to alpine forest, and mangrove swamps to salt flats. The land used to be heavily wooded, especially in the mountains, but it is no longer so. The country is predominately rural. Crops produced are bananas, sugarcane, coffee, cocoa, rice and tobacco. The road system is good and industry is at a high enough level that the services such as hospitals and schools are not uncommon.

The government is a republic and is relatively stable although it has experienced United States intervention. Apparently it has no strict code for building in rural areas. Reasons for this assumption are the existing architecture (see building type study) and the fact that the Client requested all minimum standards in the States be respected.
Goals

To understand the goals it may be best to read the Client's description of their organization found in the appendix.

1. Enhance the culture shock effect through the created physical environment.
   Method:
   - land planning and building architecture should not rely on the familiar American solutions
   - forms, methods, motifs, and materials should be drawn from existing architecture whenever possible (i.e. begin to pick up indigenous venacular).

2. Promote a sense of community both on large and small scales.
   Method:
   - use of easily accessible and large spaces for interaction between members of the same living unit
   - creation of common spaces for all participants of Escuela Caribe with pedestrian connections that intersect.

3. Utilize the marvelous assets to the maximum
   - climate, interior/exterior potential
   - views, topography

4. Provide for minimum security surveillance while respecting the privacy of both staff and students.
Models
Site Plan and Sections
Chapel Plan and Elevations
Administration Plan and Elevations
Educational Unit Plan and Elevations
House #1 Plan and Elevations
House #2 Plan, Elevations, Section, and Typical Details
House #3 Plan and Elevations
House #4 Plan and Elevations

It should be noted that House #2 was developed to a greater extent than the other buildings.

Also, it should be realized that house #3 and 4 are located on the portion of the site that was not surveyed which accounts for the absence of topography lines.
Schematic Phase

At this point the client's specific needs and desires were unclear. They expressed a desire that each house retain its own identity. It appeared that their present method as well as their optimum choice for the new site was one where the houses would be scattered and separated from each other. They preferred distance as a means to this end. I proposed three concepts showing them different alternatives to produce the same quality of identity.

Concept #1 utilized the trees as a divider, also a residence was the first structure that was seen as one approached the site which I felt was an asset at the time. The site was divided in half with its zoning, public/shared facilities on the left hand side and private on the right. This relationship is destroyed in reality by the winding road that weaves them all together.

Concept #2 splits the houses in a 2-2 relationship with the community functions located between them. The chapel at the top of the complex caused it to be a special place because of its elevation and because of the effort required to arrive at it.

Concept #3 zoned the lower portion of the site for the public and/or community functions while the private residences were located up the mountain. This had the advantage of placing the chapel in the location where it would be located with a minimum of confusion on the part of visitors who were unfamiliar with the site.

The interior relationship of functions within each building was fairly simple and straightforward although it went through some revisions after talking with the client.
Zoning

- Zoned for the most public functions, contains even slope (7% - 9% rise).
- Zoned for private activities, prime for building, contains palm & fruit trees.
- Zoned for gardens & recreation, area rocky, overgrown with weeds, and devoid of trees.
- Zoned recreational, good location for swimming hole.
- Zoned for private activities, such as rest cabins for staff, contains </s> palm trees.
- Zoned recreational, slope too steep for daily use.

SCALE: 1:5000 m
Educational Unit

- exterior recreation
- studio (art)
- storage
- study
- library
- lecture hall
- entry
- mechanics shop
- janitor
- W.C.
**Possible focal pts:**

* Within private activities
  - Fireplace
  - Common room
* Community activities
  - Chapel
  - School

* Shared functions
  - School
  - Chapel

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**Community activities**

- Chapel
- Recept.
- School

**Shared functions w/ locals**

- School
- Chapel

---

**Private activities**

- Resld.
enclosure - site lines, trees

v linkage

v means of access, ie ped or vehicle community

1. landscape & surroundings
   2. students of Escuela Canibe - how to create it, how to draw people into it

v vistas

v focal points created

v negative as well as positive areas

v symbolism - gestalt

buffers

activ.

things that need buffers

activities that can serve as buffers

natural elements

trees, stream, topo

(SUN) WTH (12AM) T

grab: VARIATION

15OC.
Feedback from Final Schematic Presentation

1. Many questions were as yet unanswered concerning the site conditions and the Client's specific needs.
2. "Criticizing" professors felt that the scattered housing was a serious mistake and should be replaced by a massing scheme. A visit to the Dominican Republic the following week proved their assumption to be wrong as the program required very separate units as part of the methodology to handle the problems of their special students.
3. A warning was given to guard against preconceived American solutions to housing problems.
4. It was suggested to use English and metric scales on all drawings.

Issues to be Discussed with the Director, Dave Henkel in the Dominican Republic

1. The three different concepts, reactions?
2. The present facilities:
   A. Are they adequate?
   B. If not, what is lacking?
3. Is there a possibility for future expansion?
4. Is there a security problem?
5. Are there other programs similar to Escuela Caribe and if so, where are they located and what are their facilities like?
6. What are the typical building materials and what are their typical units?
7. Is heating required? and if so, has solar energy been considered?
8. How is running water supplied?
9. How is waste and sewage handled?
10. What are the ventilation requirements?
11. What is the gestalt of a typical Dominican residence?
12. How should the new facilities relate to Dominican culture? American culture?
13. To what degree will the site be used for vehicular traffic?
Answers to the Questions were Supplied by Dave Henkel and a Local Engineer

1. Pros and cons were discussed, the decision was left up to me.
2. The present facilities were in some cases too small and only provided one or at the most two water closets for twelve people. All of the houses had fences around them which was typical of the majority of homes on the island. The purpose was to keep out intruders, but in the case of Escuela Caribe it probably served the dual purpose of keeping the children in. Dave requested that no fences be placed around the houses on the new site. The existing administration building had a room used for detention, but it did not have a water closet. These two additional rooms were added to the program. Also added to the program was a maintenance garage.
3. Future expansion is not anticipated, but if it should occur, an adjacent site would be purchased.
4. Security is occasionally a problem. Means of access to and from the house should be in obvious, open spaces. The kitchen should be the key point from which surveillance is maintained. A fence and gate that is presently around the site should remain.
5. Escuela Caribe has sister programs in the States and Canada.
6. Typical materials are concrete and concrete block; dimensions are in English increments. Wood is prone to rotting and termite infestation and so is rarely used. Cost also is high. Steel is expensive but available.
7. Heating isn’t required but solar as a source is a likely option in this climate. Fireplaces are often used.
8. Fresh water will be supplied by the stream up the site and the drinking faucets will have a filter on them. The water isn’t presently heated for showers but could be with solar energy.
9. Sewage should be handled with a septic tank.
10. No specific ventilation requirements except that bathrooms must be placed on the exterior of the building or have the roof raised to allow air exchanges.
11. More of the architecture of the size of the Escuela Caribe residences were either of Spanish influence or a late 50’s, early 60’s vintage. Flat roofs were most common and many houses had walls that opened completely to the exterior without extra protection.
12. Dominican houses of this scale usually have a live-in maid whose room is located near the kitchen and away from the rest of the family. This set up works well with the needs of the Escuela Caribe program. Sleeping for single staff should be located next to
the students while the married staff should have isolated sleeping quarters.

It is preferable to absorb more Dominican influence into the design of the project than American to enhance the culture shock effect.

13. Cars are not nearly as common in the Dominican Republic as in the States. The school uses one van and no one on staff owns a car. Motorcycles are the most popular means of transportation. A covered area that would accommodate two cycles at each house is desirable.
Schematics

Typical Contemporary Dominican Architecture

main entry

whines baths

small conference

smoking room

courtyard

jardín
After visiting the site and discussing the options with the Client, it appeared that each concept had its pros and cons and the decision was to be mine. From the encounter I learned the following:

1. The idea of grouping two houses together was a good one (see concept 2). It would allow for a little more interaction between two houses containing the same sex.

2. The chapel in an easy accessible position was definitely favored over the "secluded mountain top" position. (concept 3 vs. concept 2)

3. Houses were favored up the site rather than close to the road as there are occasional problems with sexual overtones when local men are within yelling distance of the girls.

4. Entry placed on the far east side would be advantageous as the neighbors keep watch on each others property. This, however, would require grading the road up the full length of the site. This is all done by hand.

The concept chosen to be developed was not one of the three original but was the result of a class sketch problem to redesign the Thesis project. The results were so convincing that it was chosen for development.

It's strong points were as follows:

1. Chapel located in conspicuous and easily reached location.

2. School and administration formed a gateway to discourage strangers from venturing farther up the road to the more private buildings, the houses.

3. Houses were located on separate and scattered plots divided by road and trees and yet united around a single social and community building, the rancho. They also were favorably located on the upper portion of the site.

Activities within the buildings were located with respect to siding, wind, and sun orientation and focal points. [In the case of the houses, it was the rancho.] Entries to the school and the administration were physically linked with a side walk. The exercise studio in the school was located so that it would open out to the exterior basketball court. The main spaces in each of the houses opened up to a patio that faced the rancho.
The materials chosen were the ones suggested by a local engineer who was consulted. Concrete and concrete block was chosen for its durability in the tropical climate and its availability.

Structurally, the walls were expected to carry the bulk of the load and concrete block or poured concrete columns would be used when the span became too great. A poured concrete slab would be used for roof spans and the use of inverted beams when distances became too great.

**Changes During Design Process**

My Client was in the States on business during the preliminary design phase and was able to give immediate feedback on the first rough floor plans. Problems arose concerning the number of water closets that were originally desired. Due to costs, each house had to drop the number of water closets from four to two. It was decided that where possible, the married staff and the common space would share water closets while the single staff and the students would share facilities.
Design Development

One other change involved security. The original plan contained circulation past staff rooms and into student bedrooms terminating there. The idea behind this was that staff could keep an eye on the students movement. Dave expressed a desire that circulation to the single staff's room be through the student's bedroom as a means of surveillance.

Feedback after a formal presentation brought about more changes:

1. All buildings were single storey except for the administration which was an experimental two storey for two reasons:
   A. To enhance the gateway effect between the administration and the school (the second storey was at the same floor levels as the school).
   B. And to offer more privacy for the apartment dweller.

   It was determined that the second storey was not successful and so was redesigned as a one storey.

2. The chapel had a flat roof which did not seem to carry the gestalt of a spiritual building. Also, the office floor spaces seemed overworked with 45° angles so they were simplified.

3. The mechanic garage was designed to be part of the school building but due to problems of noise, smells, and functional relationships, it was set apart as a separate structure. Its placement now (as seen in the final drawings) serves to enhance the pedestrian connection between the administration and the school.

4. The last major point involved the road. It was placed parallel to the existing road before the first turn which created a bend of less than 90°. It also caused the school and administration to be maligned. The angle of the road was changed so that it snaked up the road at 90° bends regardless of the existing road at the bottom of the site. This pulled the entries to the school and administration back into direct alignment.

Client feedback after design development - Positive response although some problems

1. Chapel area was to have the option of being locked. It was originally designed with an open entry.
2. Columns in the houses were undesirable.
3. The office area in the administration building did not require partitions.
4. The bathrooms and entries were worked out to the Client's satisfaction.
5. House #1 was the pick of the floor plans.
chapelsketches
Final Design Phase

1. The final design phase concentrated on the interior/exterior relationship of each building and how it might be connected to the focal points of community and social functions on the site.

2. Trees and landscaping were added, patios extended the interiors out into the site.

3. Topography was evened on the road and leveled on the building sites.

The chapel and house #2 were chosen for more refinement. House #2 was built in model format 1/4" scale. Sections were drawn and typical details were designed. The patio was extended and a reflecting pool supplied with rain water from the roof was added. An arcade was added in the back to protect the motorcycle storage area from rain as well as students as they wash dishes at the exterior sinks. Skylights were carefully and sparingly placed over the dining table and the sink/dressing area of the student's bedroom.

The model provided a great opportunity to explore the level changes and the actual construction needed to execute it. Glass was incorporated in several places where one roof line rose above another. This diffused lighting condition occurs at the stair passage from the student's bedroom and the planter area in the counseling room of House #2.

The chapel was also built in model form. The design had changed from a flat roof to a pitched roof utilizing thatching to a combination flat, concrete roof over the sanctuary. The roof plan was not yet resolved. The last condition was still considered unacceptable by professors but time had run out.

Planters and wrought iron were included to allow the facility to be locked. A bell tower over the altar area was experimented with not only as an exterior focal point, but also as a means of bringing light in over the altar.