

Urban Innovation: Cypress Hills Community School, Brooklyn NY

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Abstract:

Community-based School Development in Brooklyn, NY

This paper by the project manager, parent co-director, and architect illustrates the collaborative approach to community development, and suggests lessons for community facilities in other settings. The project represents a response to New York City under-performing schools: an alternative, dual language, community-based, parent-teacher run public school. To expand to the desired 400-student level meant that the school had to find and move to a building of their own. A \$20 million grant from the New York City Council Speakers Initiative Fund was secured to purchase and renovate an existing factory, and the organizers requested PICCED's assistance to help develop a design strategy. The adjacent heavily-trafficked and noisy highway meant that the windows would have to remain closed to maintain adequate acoustic and air quality standards. The resulting need for year-round mechanical ventilation made optimum indoor air quality crucial. Cypress Hills is an exemplar of an Innovative Development Approach and represents a new paradigm for producing smaller classes and schools.

Organizing the School

New Visions

The Cypress Hills Community School (CHCS, or P.S. 89) was founded in 1997 by a group of activist parents from the neighborhood working in partnership with the Cypress Hills Local Development Corporation (CHLDC), a community-based nonprofit organization, and the local school district. The CHCS parent leadership of the school came together in 1995 in response to their shared concern for the lack of quality education available for their children in existing public schools. Although the parents had reached the highest levels of traditional parent leadership in parent-teacher associations (PTAs), they felt frustrated in their efforts to bring about significant improvements in the quality of education in the classroom. Community School District 19, in Brooklyn, is one of the lowest performing school districts in the City of New York. Cypress Hills, which is the northern portion of District 19, has a large immigrant population approximately 70% 'first-generation' Spanish-speaking) and all of the schools in the neighborhood are overcrowded, with over thirty students per classroom. In addition, parent leaders felt that traditional classroom instruction was neglectful of the diverse linguistic and cultural heritage of its students. In 1995, New Visions for Public Schools, a Citywide nonprofit, released a request for proposals (RFP) for groups interested in founding alternative, innovative public school models. The RFP required that in order to apply for funding, school districts should form partnerships with local 'sponsor' organizations that. Cypress Hills parents decided to approach CHLDC to be its co-founding community sponsor.

The Cypress Hills Local Development Corporation was founded in 1983 by a group of community residents and local merchants in response to the deterioration of housing, 'urban decay', and other 'quality of life' issues stemming from community disinvestment during the 1960's and '70's. CHLDC has grown into a 'comprehensive services' agency, dedicated to promoting overall community revitalization through the development of affordable housing, economic (job) development, educational and human services to local individuals and families. It serves over 8,000 residents of all ages each year through its vast array of programs and services, including after-school youth and adult education classes, intergenerational and senior services, tenant-, homeownership-, employment- and foreclosure prevention-counseling, a 10,000 s.f. child care center, and merchant services. The corporation has constructed approximately 250 units of affordable housing, both for rental and homeownership, and own 24 buildings throughout the community.

The partnership of CHLDC with the parents began with the formation of a planning team to create the school's model. The founding vision advocated an institution where parents would have control over the major decisions impacting their children's education, where their native language (i.e. Spanish) was perceived as an asset and used as a tool in learning, where children were respected and nurtured in an environment of active learners and critical thinkers, and where the community and its resources would be integrated into teaching. Central to this vision was a strong cultural arts program (music, dance and visual arts) emphasizing the strength of the community's cultural diversity. CHLDC committed to support the Community School by maintaining a significant presence on the school's leadership team, or 'Governance Council', as well as providing staff support to facilitate parent involvement and after-school education. We submitted this dream proposal to New Visions in early 1996. In April of 1997 it was approved by the School District, and the Community School was provided a limited space inside a school building on the opposite side of the district to accommodate 54 students in the Fall of 1997. **(Figure 1)**

The Need for a New Building:

The school has grown since, having relocated to another 'temporary' host school. CHCS currently consists of 243 students from grades K through 8, temporarily housed in 6 classrooms and 6 portable units within I.S. 302, a larger, troubled junior high school, without access to a gymnasium, cafeteria, library or assembly room. Despite the inherent space restrictions and extremely challenging physical context, the students of CHCS have thrived both academically and socially. However, the competing space needs of the Community School and its host school, have resulted in tensions.

As part of CHLDC's ongoing commitment to support the Community School's continued growth and success as an alternative, community-based educational institution, the agency dedicated itself to creating a self-contained physical space to serve as the Community School's permanent home. CHLDC, put its expertise and knowledge of local properties to use in identifying and transforming the most appropriate space for the Community School. The CHCS leadership and CHLDC envisioned a community-owned facility, which would not only house the Community School, but would serve as a resource for hosting other neighborhood activities, educational and recreational programs. CHLDC was in a unique position as a recognized successful agency to leverage its institutional status to secure funding for the facility's creation, through coordinating advocacy directed at elected officials and City, State, and Federal government agencies. Upon the school's creation in 1997, CHLDC and the CHCS leadership embarked on a vigorous campaign to secure funding for construction of a school building and identify the best possible neighborhood site for its location.

To help bring the dream into focus, CHLDC brought together an experienced development team: PICCED's architectural team, the Pratt Planning and Architectural Collaborative (PPAC), as the project architect; the Cornerstone Group, an experienced real estate consultant, to help identify and secure the best local ; and Brooklyn Legal Services Corporation A, a nonprofit legal services agency which serves as CHLDC's house counsel, to research and secure financing and structure the appropriate legal agreements.

Finding a Home: The Search for a Site and Funding

A New School Development Model:

At the time CHLDC embarked on its quest to construct a permanent facility for the Cypress Hills Community School, no nonprofit developer had ever built or owned a facility occupied by a public school in New York City. The concept of nonprofits developing schools was new, although the New York City Board of Education (BoE) had entered into lease agreements with private, for-profit developers to house public schools in the past. CHLDC joined a coalition of community development corporations (CDC's), financial institutions, and educational advocates from across the City that formed the School Construction Working Group (SCWG). SCWG initiated a dialogue with officials from the BoE's Division of School Facilities (DSF) to create the parameters for a Nonprofit Leasing Program, whereby groups such as CHLDC could harness their neighborhood-specific knowledge and development experience to identify the best sites for construction of small schools, act as developer using City capital funding, and lease the sites back to the BoE. Given the lack of vacant land available throughout New York City and limited funding for construction, the group envisaged adaptive re-use of existing structures, such as former industrial buildings, which could be 'gut' renovated to handily accommodate school space needs, particularly for smaller alternative schools.

There were several distinct administrative advantages to the proposal from the perspective of the DSF staff: in contrast to lease agreements with for-profit developers, the Nonprofit Lease Model would be characterized by complete transparency, with BoE only paying for legitimate building operating costs, resulting in significant savings. In addition, nonprofit developers would be less constrained by costly SCA bidding requirements and administrative red tape, which tend to result in significant delays and cost overruns. DSF endorsed the model in concept in 1999, motivating CHLDC and its team to move forward to identify an appropriate site and undertake predevelopment.

Programming and Finding a Site:

Once the development team was assembled, CHLDC and the Pratt Planning and Architectural Collaborative (PPAC) met with CHCS leadership to flesh out their vision. The permanent home for the school would accommodate 400 students, with a maximum number of 20 students per classroom and two classrooms per grade level from Pre-Kindergarten through 8th Grade, with a minimum of 750 square feet per classroom, plus a gymnasium, cafeteria, library, community activity room, health office, outdoor play space and administrative offices. Based on these needs, a minimum of 50,000 square feet of program space was needed. In addition to the size, our key site selection criteria were: location (the site should be

centrally located and accessible to students and community members); architectural predisposition to adaptive re-use, (the selected structure should be structurally sound and feasible for conversion); and willingness of the current owners to sell at a reasonable price. Following these parameters, the Cornerstone Group real estate agents worked with CHLDC to identify seven potential neighborhood properties. Based on environmental tests and subsequent negotiations, one of the seven sites was identified as the optimal location for the Community School's permanent home: an industrial building located at 2911 Atlantic Avenue (**Figure 2**).

This site was a three-story loft building with a cellar under 2/3 of the building with a total of 52,000 feet of interior space on a lot of about 1/3 of an acre (about 14,450 square feet). The property was owned by Berk Tool and Vacuum Co., a family-owned business that manufactured and packages parts and accessories for car washes. Based on assurances from DSF staff that funding would be forthcoming once we had secured a viable site, CHLDC solicited a \$50,000 'recoverable grant' (essentially a no-interest loan) from the Local Initiatives Support Corporation (LISC), a bank intermediary and SCWG participant, to pay for site control of 2911 Atlantic Ave. and entered into a one-year site control agreement with the owners in September of 2000.

Finding the Funds:

Despite initial assurances of BoE/DSF, the predevelopment and acquisition funding did not materialize for almost two years, generating a great deal of acrimony, struggle, and tireless advocacy on the part of the CHLDC and Community School leaders. The first issue was staff turnover within DSF: our direct liaison, the Chief Architect who had participated in the development of the Nonprofit Leasing Proposal and indicated her support of the Community School project, left the agency, leaving us without a strong staff advocate within the BoE. The remaining staff was not as favorable to the project, and outside funding had to be identified, since PS 89 was not included in the City's Five Year Capital Plan for School Construction. In response to this turn of events, CHCS parents and CHLDC staff held a series of meetings with elected officials at the City, State and Federal levels to identify and secure project funding. After hope was raised, then dashed, that special federal tax credit bonds could be used to finance the school's construction, CHCS parent leaders decided to organize a public protest to bring attention to their plight. A large group of parents, students, and supporters gathered in front of the BoE with signs decrying the plight of their 'homeless school', and children sat in cardboard boxes symbolizing the deplorable conditions they were forced to suffer through inside their overcrowded host school. The action was a success, garnering press coverage and getting the attention of key decision-makers at the BoE. Within two months, after non-stop follow-up to elected officials with the sponsorship of our City Councilman, Martín Malavé Dilán, CHLDC had secured an unprecedented \$20 million grant from the City to build the school, approved by the Brooklyn delegation of the City Council on June 28th, 2001.

Due to the events of September 11th, 2001 and the subsequent mayoral election, which resulted in the complete transformation of the BoE into the Department of Education (DoE), an agency now under direct executive control under Mayor Michael Bloomberg, use of the funds was delayed for nearly a year. CHLDC was finally able to purchase the site in May of 2002 with one major, fateful change in the expected development process: as part of the new DoE's complete overhaul and restructuring, many of the functions formerly undertaken by the DSF were taken over by the SCA, the very same agency so notorious in the past for cost overruns, bureaucratic delays and inflexible design specifications. Despite our efforts to divert project funding through another, more efficient City agency, ultimately the SCA was to become the fiscal conduit for the project funds, leading to what would become a three-year year negotiation over how the project would take shape.

Transforming the Building

Schematic Design:

2911 Atlantic Ave. was the best available site but offered a number of challenges to the architectural team from PPAC, some of them posed by the building's configuration and location, others stemming from the shifting bureaucratic ground beneath their feet. The resulting building profile, layout, and mechanical

system reflect the need to balance the internal agendas of the school's organizers with the building's condition and design standards set by DOE.

Challenges & Responses:

- **The building exceeded the maximum allowable floor area in an M-1 zone, where schools are not a permitted use.**

We could get a Mayoral Override on the use question, and the total floor area could be kept since the building was built prior to the adoption of the zoning regulations; but approximately 4,640 s.f. of this floor area was contained in the narrow two-story structure on Warwick St. whose floor levels did not match the rest of the structure. We decided to demolish this structure and "recycle" this floor area to the roof of the main structure, which, luckily, had been built to support a future fourth floor. Two existing stairwells extended from the Cellar to the roof, now the fourth floor, and could be re-utilized, but the increased number of occupants required a third stairwell to be built. This would be located in a tower on the north side next to a new elevator (**Figure 3**).

- **Zoning & Building Code and DoE program requirements necessitated major reconfiguration of the building's envelope and interior.**

The "building" was actually comprised of three structures built at different times and of different construction systems, although the main façade on Atlantic Ave. had been covered with a brick and cast stone veneer to give it the appearance of a single building. The western portion of the main structure had a concrete-encased steel frame and concrete floors that complied with the Building Code's requirement that schools be constructed of non-combustible materials, but the eastern portion had wood floor beams that did not. These wood beams would have to be removed and replaced with new steel framing and concrete floor slabs. This requirement, however, allowed us to carve out a double-height space for a Multi-Purpose Room that would serve as an auditorium as well as a gymnasium. Typical lease-conversion projects do not make major structural alterations such as this large clear-span space; another advantage of the community-owner development approach.

In addition, the zoning regulations required a setback after the 3rd Floor that resulted a roof terrace around the new 4th Flr. Classrooms and a sloping roof on the south side of the Multi-Purpose Room. This latter became an opportunity for daylighting through a translucent skylight. (**Figure 4**)

- **The site's overall size of 52,000 s.f. was just enough to provide the classrooms necessary for the desired 400 student capacity, but not enough space for support spaces and mechanical equipment.**

With the classrooms, administrative offices, and Multi-Purpose space located on the upper floors, the designers had to turn to the Cellar for the kitchen, cafeteria, library, and mechanical equipment rooms. The existing full-height Cellar in the western portion could not accommodate all of these functions, so the eastern portion of the Cellar had to be excavated to provide the needed room. The library and cafeteria were kept as far as possible from the south side to avoid the acoustic effects of the Long Island Railroad passing under Atlantic Ave. To open up the Cellar, new area wells would be dug to bring daylight into the Cafeteria and Library. (**Figure 5**).

- **The site's location is ideal for proximity to students & families, & public transportation - but not environmentally.**

Atlantic Ave. is a heavily traveled four-lane road and a major truck route; keeping the building's current main pedestrian entrance on this narrow sidewalk would not be desirable. Demolishing the small building allowed us to create a 3,970 s.f. playground on residential Warwick Street, and to locate a new building entrance there (**Figure 6**).

When these schematic design strategies were reviewed by the Dept. of Education's technical staff, they revived an issue that had been discussed and seemingly settled during the initial site evaluation by DSF.

With the project now under the jurisdiction of the SCA, which previously dealt exclusively with new construction, they again questioned whether, given the reconfigurations contemplated above, it wouldn't be easier to demolish the existing building and build a new structure. Our reply included the following arguments:

- a new building would have to follow the current zoning regulations that would yield less total allowable floor area than possible with the existing "grandfathered" total, resulting in the loss of three classrooms from the rehab design.
- the presence of the Long Island Railroad tunnel under Atlantic Ave. would require new foundations to be of the expensive pile type. Keeping the existing structure, even with some underpinning for the excavated eastern Cellar, would be more economical.
- with a two-story commercial building immediately adjacent on the east, the demolition of the existing brick shell building would have to be a painstakingly slow and costly process.

The SCA accepted these arguments, but as will be seen, exacted its pound of flesh in the continuing design review process.

Design Development:

As mentioned above, the traffic, air quality & noise from Atlantic Avenue posed problems for the design team but also provided a creative opportunity during the selection of a mechanical system. The NYC code requires 100% mechanical ventilation, to provide min. 15 CFM per occupant in classrooms and instructional spaces. So most heating and cooling load results from the need to condition supplied air (rather than gain / loss through building skin). The mechanical engineers from Flack & Kurtz Inc. suggested that "displacement ventilation" and cooling – mainly through an underfloor plenum - would provide an efficient and high quality mechanical ventilation system. This system had been utilized previously to meet the strict air quality standards required for computer rooms, but had only recently begun to be used in a few schools in the Midwest. This would be the first such system in a New York City public school.

In this system tempered air is distributed through registers located in the raised floor system (**Figure 7**). The conditioned air gains heat in the room then rises by natural convection and leaves the space via return air registers in soffits or at suspended ceilings. The "access floor system" is composed of 2' x 2' x 1" thick steel & cementitious fill floor plates supported 13" above the concrete floor slab on steel pedestals. The plates are covered with vinyl composition tile (vct) or carpet tile finish flooring. The space below forms the supply air plenum, avoiding the need for extensive horizontal ducting. The registers in the floor grilles are resistant to tampering and to objects falling into them. Modest liquid spills are contained by the registers, which can be removed by maintenance staff and cleaned out.

An annual energy usage projection comparing the performance of the underfloor system to an overhead system showed 29% electrical savings in the summer and 19% fuel savings in the winter. Another advantage of the underfloor system is that there is no need for suspended ceilings in most areas; this allows us to use the ceiling to make the best use of daylighting / uplighting.

The system does bring with it additional challenges, as we'll note as we go through the building.

Second floor : (**Figure 8**) The raised floor system is utilized throughout, but ventilation is supplied only in the areas tinted green. The tan spaces are conditioned via overhead ducting. The classrooms are organized to maximize daylighting through the large window areas. We had to accommodate the raised floor level in the existing stairways; luckily, we had room on the landings to accomplish this.

Third floor: (**Figure 9**) The classroom wing is similar to the second floor, but the Multi-Purpose Room occupies the entire east side. This room will not have an access floor since it would make the basketballs bounce funny. It worked out nicely though, since this floor slab is all new framing and we can set the level where we need it. The art room next to the Multi-Purpose Room will not have a raised floor since it is on this same new floor slab.

Fourth floor: **(Figure 10)** This contains the upper part of the Multi-Purpose Room and the new construction “penthouse” including two classrooms and a science laboratory. The outdoor terrace will be finished with pavers for now, although there is the possibility of a green roof and a greenhouse in the future.

Roof: The big issue in this building – just not enough space - so two chillers and three air handlers are located here on a raised platform above the roof. Energy conservation & displacement ventilation helped us here, since the systems and components could be somewhat smaller than in a conventional system. It is important to understand that the trade-off for this industrial look is the ability to re-use a building on a tight, already-built-up site, in a neighborhood where most children and many staff will be able to walk to school.

Plan Review Process:

Needless to say, it took a major effort on the part of the design team and the project’s sponsor to convince the SCA to agree to try out the underfloor ventilation system. The key was the SCA’s engineers’ site visit where they understood the advantage of raising the floor instead of lowering the ceilings and blocking up the tops of the large industrial windows that had such daylighting potential. However, this concession, instead of opening up the SCA design review staff to further experimentation, seemed instead to generate a defensive reaction and a determination to rigidly enforce their other design standards.

Whereas the DSF had initially required the PPAC design team to merely use the SCA Master specs as a reference, the SCA now expressed their “desire” that we follow the SCA’s Master Specs. They also expressed their “preference” for heating, cooling, and ventilation equipment different from the types we had submitted.

After the 100% construction document submission, they changed this “desire” to an absolute requirement that the mechanical engineers follow the SCA specs. Their argument was that it was too difficult for their technical staff to attempt to read another set of specs and be able to confirm conformance with their standards. The mechanical engineers complied with these demands, but charged the project for Additional Services for having to re-write several hundred pages of specifications and the project was delayed several months while these changes were made.

Lessons Learned (to date):

Innovation does not come without a price.

The school has put into place an innovative curriculum with substantial community input, but has endured several years of extremely crowded conditions as it sought a new home.

The community has been able to achieve its desired space program within the new building, but the extensive reconfigurations needed to do so are straining the project’s budget.

The community ownership non-profit lease model did provide the creative space to adopt innovative design features, but the continued role of the SCA as the fiscal conduit for the project meant that their time-consuming reviews and construction standards remained part of the process and offset much of the time and cost advantages of this development model.

This reflects the deeper and widespread issue of fragmentation of roles and responsibility. In many U.S buildings, the Owner – Builder – User – Payer are different entities. There is little incentive for anyone in the chain to assume added costs or risks, when the benefits will be enjoyed by others. Our client (CHCS Development Corporation, the project’s Owner and Builder) is morally, though not financially, accountable to the end users (students, staff, & parents), and is thus concerned with their comfort. CHCSDC wants

the lease to give it full responsibility for routine custodial services, rather than assigning this role to the “tenant’s” – DoE’s custodians. This is an incentive to incorporate high-performing, easily maintainable systems. But the standard DoE lease provides that maintenance, water, sewer, and energy costs are PASSED THROUGH to the Tenant (DoE.) This would give CHCSDC, which is working within a fixed construction budget, little incentive to invest limited construction dollars in systems that will save energy costs through the building’s life cycle.

Project team

Owner / Developer: **Cypress Hills Community School Development Corporation**

Tenant: **New York City Department of Education / NYC School Construction Authority**

Architect: **Pratt Planning & Architectural Collaborative**

Mechanical & Electrical Engineers: **Flack & Kurtz, Inc.**

Structural Engineer: **Robert Silman Associates**

Energy / Life Cycle Cost Consultant: **Community Environmental Center**

Attorney: **Brooklyn Legal Services Corporation “A”**