

# Notes on the Intersection of Architecture and Social Entrepreneurship

This research and consequent Design-Build project demonstrate how a group of faculty and students from a range of design and engineering disciplines converged to create an educational non-profit and an urban agriculture facility to support a social mission. Both the facility and the organization were created and deployed in the field by the same group of young architects and designers. The fit between the facility (designed by students and faculty) and the organization it supports (also created by the faculty and students) was thus developed in a recursive feedback loop with numerous instances of continual learning and adaptation that greatly improved the architectural outcome. The resulting 6000 square foot urban agriculture facility on a 4 acre site serves as a model for award-winning environmentally-conscious design, innovative reuse of construction materials, environmental remediation, sophisticated water management, progressive land conservation techniques and successful social entrepreneurship through mission driven design, programming and revenue generating building elements.

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## **DESIGN AND SOCIAL ENTREPRENEURSHIP**

Although a clear and singular definition of social entrepreneurship has yet to be agreed upon, many accept the term to apply to organizations in service of a social mission while drawing upon both revenue-positive business models and socially oriented, non-profit strategies. In general, social entrepreneurship is characterized by a continuous process of learning and adapting—appropriating and testing a broad range of unconventional inputs to solve social problems. Optimal outcomes in these ventures address pressing and ongoing societal needs without generating cycles of dependence on continued philanthropy or subsidy.<sup>1</sup>

Though it may seem self-evident to architects and environmental designers, this recursive process of continual learning (as well as the open embrace of models from many sources) is quite like the design and construction process at its best. Likewise, components of the built environment that continue to serve a social or cultural purpose with little need for extensive maintenance regimes and endless cycles of consumption and waste, are construction in its most sustainable form.



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The project and process described in this paper begin with a network of social problems in post-Katrina New Orleans. Though architecture can sometimes be a cumbersome mechanism with which to address social problems, the design and construction of an urban agriculture facility, dubbed the *Grow Dat Youth Farm* has truly become an instance of design as a tool for positive and measurable social change.

This paper will describe the complex process through which a small public interest design center (with a staff of three) drew upon the resources of a major university and on carefully developed community partnerships to create a non-profit organization and, simultaneously, the facility to support the operation of that non-profit. Though the farm facility and its constructed agricultural landscape are easily associated with the work of architects and engineers, the hand-in-glove creation of a self-supporting, non-profit, service organization dedicated to the address of several social ills has a less obvious relationship to architecture as it is conventionally understood.

The Tulane City Center (TCC) is an outreach and community-engaged design center of the Tulane University School of Architecture in New Orleans, Louisiana.<sup>6</sup> The center was established in 2005 just after the devastating floods related to Hurricane Katrina had subsided. Funded with a broad array of public and private grants and generous, unrestricted gifts, the TCC engages in “design visioning” as well as Design-Build projects in conjunction with the students and faculty of the School of Architecture. The design visions created by students and faculty are often prelude to subsequent Design-Build projects and each vision brought an array of community partners into the sphere of the design center. By the fall 2010, the TCC had well established partnerships with the Tulane School of Medicine, the New Orleans Food and Farm Network, the experimental charter school system, and several structural, civil and environmental engineers to name just a few.

Following a suggestion from the Tulane University President Scott Cowen in the Fall of 2010, the TCC undertook the creation of a new non-profit that came to be called the “Grow Dat Youth Farm” using many elements of the university administration and expertise from across many academic disciplines. All of these entities

Figure 1: The Grow Dat Youth Farm located in New Orleans City Park. The farm facility was designed and constructed over three semesters, moving from conception to completion between 2011 and 2013. All design and construction work was executed by architecture students in for-credit courses under the guidance of Tulane faculty and Tulane City Center staff. The project uses seven recycled shipping containers and recycled steel bar-joists to create a large, covered outdoor classroom and supporting spaces as well as a food processing and storage facility associated with the agricultural production of the working farm. The containers create a buffer to a nearby highway and shelter the program spaces from solar exposure. Extensive sunshading is created with a vine covered shade screen façade to the south and rain-screen protection for each outdoor work area.



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Figure 2: The food processing area of the Grow Dat Youth Farm is depicted in this image. Farm produce is wheeled in from the agricultural areas and arrives at this shaded area where the food is washed and prepared for sale or donation. Like all the dedicated wet-areas of the project, food processing lies between the productive fields and the more formal learning spaces of the project. The shaded work space is defined and supported by two reused shipping containers, each resting on four corner piers and each carrying the loads imposed by the steel and wood framed canopy. The point-loads of the piers are superior to linear foundations in this instance, since points do not interfere with the adjacent tree roots. The native tree species are, in turn, a substantial part of the passive cooling system of the work areas in the hot humid climate of New Orleans.

were coordinated by the TCC which, at the time, consisted of Associate Director and ecologist Dan Etheridge, Design-Build Manager and architect Emilie Taylor, and the author, as Director and architect-of-record for the project described herewith.

Drawing upon the expertise described above, the TCC established a partnership with an experienced health and leadership educator who specialized in work with high-school-age students from challenged backgrounds and neighborhoods. That talented educator, Johanna Gilligan, also had extensive experience with urban farming through her work with the New Orleans Food and Farm Network. She thus became the leader of the Youth Farm program development which would operate under the umbrella of Tulane University until the new non-profit she led could be sufficiently established to stand on its own. Tulane University contributed the talents of development officers, and grants administrators to the effort, with all the funds generated to establish the program passed through the university directly to the program itself. This made the process of financial management much easier and was enormously reassuring to grantors and donors who knew they could trust the university to manage the gifts and grants professionally.

With these elements in place, the TCC produced a “visioning document” with an outline of the envisioned youth farm program and the facility that would be constructed to support the farm. The architectural elements of the vision helped to make the proposed program seem real and rooted - something many donors are eager to understand when considering support for a start-up program. The vision also brought another essential partner to the table in the form of the New Orleans City Park which offered a four-acre site for the youth farm on the site of an abandoned golf-course not used since the floods of 2005. City Park in New Orleans is self-funded and thus asks a lease payment from the youth farm - payable in freshly grown produce that is served at many Park venues and events.

Before moving to a discussion of the architectural and environmental design elements, it is important to understand the social issues the envisioned program and project sought to address and how the effectiveness of the project could be measured in relation to its stated goals.

## THE SCOPE OF A PROBLEM

The problems of many young adults in New Orleans are myriad. Two of the most conspicuous problems—those of poor health and chronic unemployment—are quite probably interrelated. Thus, a simultaneous address to both of these problems could potentially produce results measured in range of metrics—from improvements in long-term health and personal agency to the essential skills and sensibilities that support meaningful employment. The following statistics offer a window into some of the substantial problems facing young adults in New Orleans that the Grow Dat Youth Farm attempts to address.

- In 2011, the Bureau of Labor Statistics reported a **42.1% rate of unemployment** among African American teenagers between 16 and 19.
- Of the adults in New Orleans’ African American community, **70% are overweight or obese**
- According to the Trust for America’s Health, **33.5% of high-school students in New Orleans are overweight or obese.**
- Food access studies confirm that New Orleans is one of the largest urban food deserts in the US with **10 supermarkets serving 340,000 people.**

As these statistics indicate, New Orleans presents very few job opportunities for teenagers and most of what is available is in the fast-food industry. There is woefully inadequate access to food, particularly fresh food and healthy food options. Many New Orleans families do not have regular access to an automobile and cannot reach the few supermarkets near their neighborhoods. Of even greater concern, many of the working families in the city rely on teenage members to prepare food for the whole family since adults are often overwhelmed with work in low-paying jobs in the service sectors of the local economy. High-school age students are seldom experience in the preparation of healthy food and often rely on fast-food options to address daily meals. This phenomenon and others contribute to startling statistics for chronic health problems such as diabetes and obesity among a large proportion of the urban community.

## THE PROPOSAL

*The Grow Dat Youth Farm seeks to nurture a diverse group of young leaders through the meaningful work of growing food.<sup>4</sup>*

Above is the clear and simply stated mission of the youth farm program. A broad range of academically successful as well as “at-risk” students are drawn from several different public and charter schools into the program. This diversity plays out over socio-economic and racial distinctions too. Students apply to the youth farm program through their respective guidance offices and are interviewed by previous graduates of the youth farm program and the Grow Dat program directors. Each year, a group of 30 students is selected from five or more area high-schools to participate in the six month program. Students attend workshops and classes and undertake extensive leadership training in the after-school program. Classes are held in the large, covered outdoor classroom space at the farm facility and usually proceed each afternoon’s work in the agricultural activities. Each year, students in the program grow 30,000 to 50,000 pounds of sustainably grown, organic produce. Working with expert farmers and student leaders from previous years in the program, the produce is cultivated, nurtured and harvested without mechanical devices, chemical pesticides or chemical soil treatments. The produce is highly valued and when washed and packaged (by the students) it is sold to many restaurant



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Figure 3: A composite image presenting the plan, massing diagram and principal spaces of the Grow Dat Youth Farm as completed in 2013. The uppermost image is a view of the outdoor classroom space with the demonstration kitchen visible on the left of the image. The plan shows the ground level of shipping containers arranged to form the spaces of the market courtyard and work areas as well as the covered spaces of the classroom and food processing area. Two images of the courtyard in use are shown on the right of the composite image. These are a night photo of a Pecha Kucha event complete with a food truck bounding the courtyard, and an image of the same space during a weekend plant sale for community gardeners. The small massing drawing in the lower left shows the adjacent, elevated interstate highway.

venues in the city as well as weekly farmers markets and health related events in city neighborhoods. About 60% of the produce is sold in this fashion and the proceeds are an important part of the operating budget of the youth program. Students are paid a stipend (for many, this is their first paycheck and first form of formal employment) and the sale of produce forms a significant portion of the compensation. Students are also actively engaged in the distribution of 40% of the produce to community organizations such as food pantries, health events and special no-cost “markets” held at retirement homes and other institutions in the city. Students also take home as much produce as they wish for their own families and neighbors, making them “ambassadors” of healthy food in their communities. Similarly, the students take cooking classes to learn about healthy food preparation and are frequently seen instructing others at community events. High-school students in the Grow Dat Youth Farm program become important advocates for a value set that aims to transform attitudes about health at the “lifestyle” level and on a very practical level by providing access to healthy food for many in the larger New Orleans community. The ambition to address these particular social problems with this particular array of elements was contingent upon a TCC assessment that the university resources

and community partnerships most readily available to us were best suited to this approach. We believed, correctly, that supporting resources and potential funding streams were available and we relied extensively on the lessons we had gathered from earlier, smaller projects with the same partners. The TCC had worked previously with every partner in the Grow Dat Youth Farm vision and those relationships had established reliable expectations, integrated expertise and, most importantly, trust among the various partners and project advocates.

Most notably, participation of the Tulane University Social Entrepreneurship Initiative, the Tulane President's office, the Tulane School of Medicine (community health initiative) The Cowen Institute for Public Education Initiatives, and the Tulane University Development Office were crucial elements of the initiative. In the community and beyond the university we worked with the New Orleans Food and Farm Network, New Orleans City Park, Clean Plate Enterprises, Engineers Without Borders, the Hollygrove Growers Farm and Market, and more than a dozen other non-profit groups and expert associations. Each of these organizations was willing to take risks to be part of the project, and each made generous donations of time and expertise to the effort.

### **A PILOT YEAR**

Once the operational concept of the Youth Farm had been established and the core personnel had been hired, preliminary funding for a pilot year of the program was secured. The goal of the pilot year was to develop insight into the physical needs of the program and to examine the relationship between the architectural environment and the needs, both practical and poetic, of the program participants. In the pilot year, two architecture design studios would develop, respectively, an agricultural landscape on the site of an abandoned golf course, and a learning facility functioning simultaneously as a working farm. Each of these design studios would have regular access to the high-school students in the pilot program and most design reviews involved representatives from the pilot program (instructors, students and farming experts).

The pilot year involved only fifteen high-school student-farmers and was sited at the Hollygrove Growers Market and Farm, an earlier project of the Tulane City Center from 2009. The core personnel of the youth farm program worked in sync with the architectural studios to develop the farm/classroom buildings and agricultural programs by facilitating many discussions with the architecture students farming experts and the high-school farming students (please see the composite illustration in figure 4).

One small example of a programmatic/spatial insight from the pilot year had to do with the daily process of high-school students changing shoes to work on the muddy agricultural tasks. The pilot program facility did not offer many places to sit comfortably to change from school shoes to farm shoes. This resulted in 20 minutes of every class session being devoted to the simple task of donning appropriate footwear. Similarly, a convenient and secure place to store "clean" shoes was not available and many minutes were wasted in trying to situate student belongings. In the final design of the permanent facility, students were careful to position a broad flight of low, wide steps immediately in front of the locker/storage room and between the outdoor classroom and the path to the agricultural fields. Students would move through "clean zones" or "dry zones" in the classroom and courtyard spaces of the project and pass through the carefully designed transition spaces to change shoes, store backpacks and gather tools on the way out to the fields and again to return tools and clean-up on the way back to the classroom at the end of the

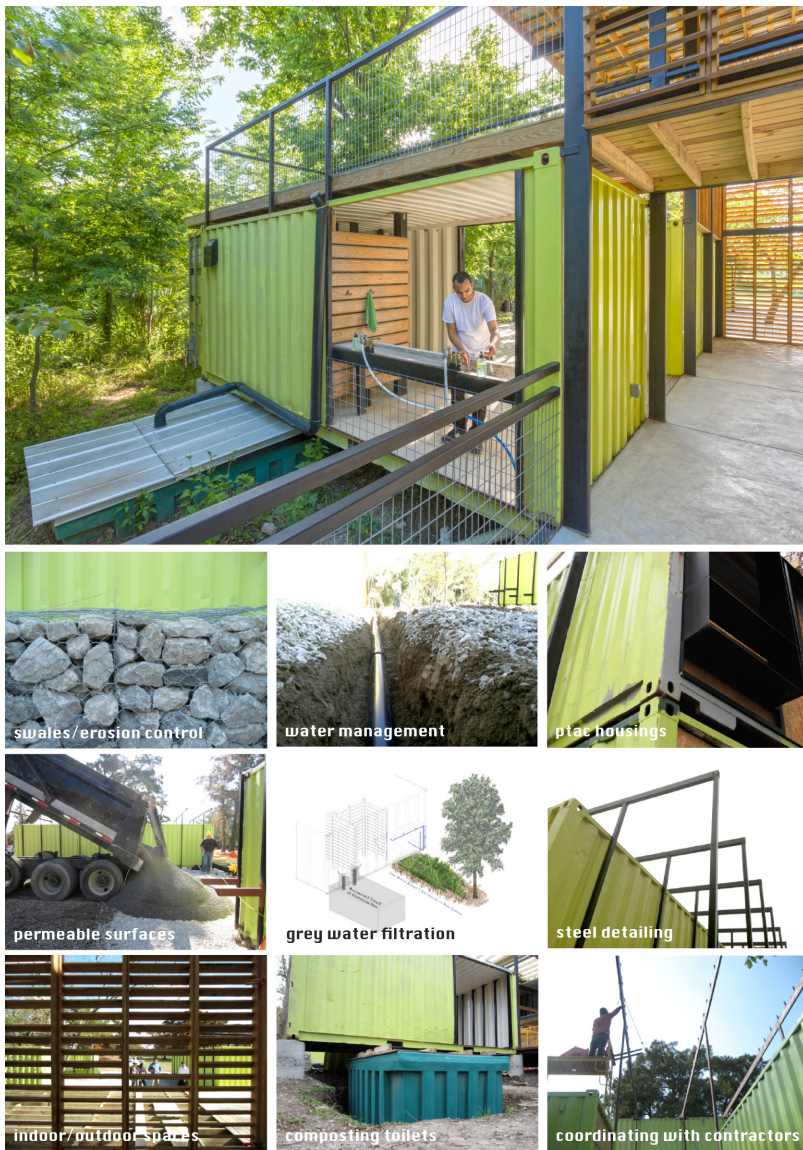


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Figure 4: A composite image presenting some of the important moments in the design process. Architecture students and faculty worked with high-school students who were participants in the pilot year of the urban farm program to develop and tune elements of the project. Among other stake-holders, architecture students presented to the student growers, various donors and granting agencies, architects and environmental engineers. The farming consultants on the project were among the most demanding of review groups which helped to insure that the working farm was, indeed, a working farm. At the top is an image of the completed outdoor classroom. A large ceiling fan (not visible in this image) helps to cool the space which is shaded by a large roof, louver walls, and the adjacent tree canopy.

day. The restroom and tool storage spaces were also located in this transition zone. Ultimately, a major zoning concept of the project as built was established specifically to deal with the formerly tedious and inefficient process of moving students between different roles during the afternoons and weekend sessions. It was also observed that no mirrors should be located in the farm spaces because high-school students would adopt a “come as you are” attitude without mirrors, but would spend inordinate amounts of time making “adjustments” if mirrors were provided.

Perhaps the most significant lesson gathered from the pilot year was the reaction of the high-school students to the issues of environmental stewardship. Few of the adults involved in the project anticipated the extent to which the teenage farmers would understand and support ecologically driven decisions. The overwhelming interest these young students had in remediating the contaminated City Park site and engaging issues of water management and waste filtration was impressive to all concerned. This, in turn, encouraged the architecture students to redouble their efforts toward creating an environmentally sustainable site system with a minimal carbon footprint and a fundamentally ameliorative ecological posture. Exposure to



representatives of the actual user-group throughout the design and construction process was truly inspiring for the architecture students who internalized the words of Sam Mockbee who always insisted that architects *assume ethical responsibility for the social, political and environmental consequences of what we design and build*.<sup>5</sup>

At the conclusion of the pilot year, the two initial (spring semester) design studios, led by Landscape Architect Abigail Feldman and by the author, had produced a complete design and preliminary construction documents for the creation of a 6000 square foot urban farming facility and a four acre agricultural site configured for labor-intensive, organic farming and sophisticated water and soil management techniques. All rainfall would be sequestered on site, all gray-water would be bio-filtered on site and all black-water would be composted on site (please see the composite illustration in figure 5).

The farm/classroom facility itself was designed to be built with seven recycled shipping containers, heavy, tube-steel columns and recycled steel trusses to create a large, covered outdoor classroom and supporting spaces as well a food processing

Figure 5: A composite image showing several of the environmentally sustainable features of the project. Students did extensive research into the water management, grey-water and black-water systems since the site was not connected to storm or sanitary drainage. No native tree species were removed to create the farm. The former golf-course site required extensive remediation and on-site water sequestration. Less technically complex (but experientially rich) were the sunscreens, permeable surfaces, gabion walls, recycled steel members and re-purposed shipping containers.



and storage facility associated with the agricultural production activities. The shipping containers created a buffer to a nearby elevated highway and were used to shelter the main program spaces from solar exposure. Part of the partnership with New Orleans City Park was for the youth farm to utilize an undesirable portion of the park adjacent to an interstate highway that had bisected the park in the 1970's. The farm was positioned along a surface street built adjacent to the highway and the design task was to make this disused area useful and, whenever possible, to make the site more "park-like" and simultaneously put the agricultural activity on display in a fashion appropriate to the urban park. A beautiful stand of mature Bald Cypress Trees already existed on the site and the architecture adopted a position very near but just behind these trees. Careful site grading and even more careful foundation work allowed the Cypress trees to play a major role in water sequestration, bio-filtration and sun-shading for the farm facility (please see the illustration in figure 3).

Since shipping containers are designed to require only point-loaded foundations at their corners, they make long (20 and 40 foot) and highly efficient spans—essentially acting as box-beams. The container spans spared the adjacent cypress tree roots from the disruptive excavation called for with linear foundations. The large canopy roofs above the containers are supported on steel columns welded to the containers. The roofs shade the metal containers and prevent solar heat-gain while forming the primary spatial definition for the outdoor classroom and food-processing areas. Extensive sun shading is created with a vine covered shade screen façade to the south and rain screen protection for each exposed shipping container (please see the illustration in figure 2).

All of the design strategies involving the structural and attachment systems for the shipping containers were tested on a sample container installed behind the School of Architecture. This "test container" now functions as a storage shed for tools associated with Tulane's Design-Build programs.

#### **THE DESIGN-BUILD SEMESTERS**

Two additional semesters were required to fully complete the Design-Build project. The first of these was an intensive twelve-week summer internship created to move the project through initial site preparation, the creation of pier foundations and the installation of the shipping containers. The crew of eight student-interns was also responsible for extensive research on water systems, composting toilets, invasive species and site logistics. These students met several times with the State Fire Marshall, and prepared all the necessary permit documents for the project. The internships were paid and the student-interns alternated between an office-like setting for documentation and research work and on-site as part of a construction team. Because of the excessive heat of a New Orleans summer, these interns did not work full days on site but usually devoted mornings to site work and afternoons to "desk-work." Though educational, the internships were far more production focused than typical coursework.

Following the work of the summer interns, a fall semester Design-Build studio was led by Emilie Taylor (TCC Design-Build Manager and adjunct faculty member) as well as the author. This studio consisted of 22 upper-level students who completed the design and build-out of the facility in the fall of 2011—about one year after the project was conceived. The students in this semester worked almost exclusively on-site during studio hours and brought design development drawings and mock-ups to the site for review and subsequent implementation. These students were visited and critiqued by many of the same instructors and high-school students from the

pilot year of the program. The feedback loop of information had many points of continuity and the architecture students were very attentive to the lessons articulated by their colleague predecessors and by the youth farmers who had completed the pilot year. Students from the design studios proceeding the Design-Build semester were often found on-site supporting the work and participating in the construction as much as their time allowed.

Architecture students completed nearly all facets of the construction themselves. Professional subcontractors were hired to do the electrical work and the six tube-steel beams spanning the 24-foot classroom some 20 above the finished floor were installed by steel fabricators. All the other steelwork was completed by students - eight of whom learned to weld steel in preparation for the studio. Like students in the fall semester, the Design-Build team met frequently with the structural and environmental engineers of the project. Architecture students were shown how to calculate the bio-swales and long-span steel components but were then asked to make the calculations themselves. Students were visibly moved by these responsibilities and took the tasks very seriously. Perhaps a familiarity with the user-groups and the broad community of project participants made the questions of life safety and healthy site ecology more meaningful than the usual products of a design semester.

Though some students in the Design-Build semester had expressed concern that “all the design had been done” by the previous groups, they quickly understood that the detailing of connections, of build-outs and systems as well as an almost limitless number of necessary adaptive changes more than lived up to their desire for some authorship and agency in the creation of the facility.

## REVENUE

Finally, the conclusion of this process and project description should include a fascinating aspect of a building designed as part of a social entrepreneurship endeavor. Although the Grow Dat Youth Farm supports some of the program costs and student stipends through the sale of produce, a substantial portion of the program’s revenue must still come from other sources. Programs like the Grow Dat Youth Farm are usually able to generate 15% of their own operating costs through the sale of produce. The balance most often comes from grants and private donations. As a true exercise in entrepreneurship, Grow Dat is currently running at nearly 50% self-sufficiency. This is due, in part, to the value of the facility itself as a venue. The outdoor classroom and demonstration kitchen as well as the courtyard and surrounding landscape are home to dozens of events each year. Most of these events—ranging from weddings to Pecha Kucha nights and from farmers markets to art sales—are revenue producing. Environmental tour groups visit the site and it has become a hub in the volunteer community supporting the City Park. The built environment of this project is a compelling place, and that seems to have actual value.

## ENDNOTES

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4. More Information about the program and people at the Grow Dat Youth Farm can be found at their website: <http://growdatyouthfarm.org>.
5. Freear, Andrew and Barthel, Elena. 2014. *Rural Studio at Twenty; Designing and Building in Hale County, Alabama*. New York, NY. Princeton Architectural Press.
6. More Information about the community outreach and Design-Build programs of the Tulane City Center can be found at their website: <http://tulaneccitycenter.org>