

THESIS BOOK RYAN GRAM NDSU DEPT. OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE

The Integration of Urban Agriculture into the Modern Elementary Education Curriculum

Public Private Partnership as a Community Engaged Design Venture - A Delivery Model for Stronger Schools

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by

Ryan S. Gram

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Primary Thesis Advisor

5/9/2016 anan

Thesis Committee Chair

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Thesis Abstract

The future of our nation belongs to our children. The success of our children relies in the education we provide for them. Throughout history there have been great gaps in the Opportunities children receive. Unfortunately these gaps in Opportunities is inherited and not deserved.

In nation of such great wealth, no child should be forgotten and thus given inadequate access to education or health. Good General health begins with access to fresh fruits and vegetables.

FIGURE 05 - Student Engaged Design Charrette



THE NARRATIVE OF THE THEORETICAL ASPECT OF THE THESIS

Elementary schools serve as the center for many communities. It is the beginning of our children's education, the foundation for their academic success. Elementary schools hold a fond place in many people's memories. That memory might be of meeting a life-long friend, a great teacher or grand playgrounds. The role of Architecture in a school is specific to its typology. A modern Elementary school must address a growing number of educational, communities, environmental and recreational needs.

Private Public Partnerships and Community Design are projectfinancing options that are becoming more and more popular. As governments have less and less money, and often run into resistance from the community for tax increases to fund projects, Public Private Partnerships and Community Design projects give firms another approach to their business. Against the grain of the traditional delivery model, these "new" approaches allow the community to be engaged in various parts of the project. This community engagement gives a project a new outlook. When a community participates in the venture, there is a new pride gained for the project. Throughout history there has been a bad track record of community revitalization project success. Although Private Public Partnerships and Community Design projects breadth spans far beyond revitalization projects, they offer an exciting opportunity. Typically an organization or developer makes the decisions and builds a building. Involving the community allows the involved members to take ownership of the project, and take a great pride in the community project. This thesis will focus on involving local community members throughout the project, from site selection and design to construction and maintenance after delivery.

Post WWII, urban elementary schools became larger. In recent studies, these larger schools are found to have their faults. Issues



FIGURE 06 - Farm box for students to take home

FIGURE 07 - Students practice urban gardening

of violence, lower academic success and overall behavior issues tend to be greater at larger schools. These negative effects tend to exacerbate with poverty. The link between poverty and poor academic achievement has been long understood. Arguments for larger schools typically revolve around the budget however, new studies are showing that smaller schools can actually reduce the per pupil expenditures by an average of \$389. (http://www.educationworld.com/a_issues/issues108.shtml)

There is a grassroots movement towards smaller neighborhood schools based on strong evidence that many of the issues modern era schools faced are greatly decreased in the smaller setting.

Another issue facing the youth in urban areas is availability of fresh foods. Food desserts have become an increasing problem in America's urban areas and are a difficult challenge that faces the global landscape. Here in the U.S. we often find them in low-income urban areas. These areas have little access to fresh foods and typically do not practice gardening or unban agriculture. In a rich urban center like Minneapolis that is full of farmers markets and food Coop's, there is not reason a food desert should exist. The integration of urban agriculture into the curriculum at a young age is a convincing way to gain the area better access to fresh foods.

It all begins with education, and if a project can integrate urban agriculture as part of the elementary curriculum, children can learn to fix the problem that they have unfortunately inherited. Food grown in a neighborhood elementary school cannot only help subsidize the foods needed to feed the children during the school year, but can also be brought home to feed their families, reaching greater depths of the community. In addition, allowing the school to have a farmers market will gain the neighborhood access to fresh fruits and vegetables.

THE SITE 2410 GIRARD AVE N, MPLS, MN

Minneapolis is a vibrant and diverse community. The Twin Cities are home to fortune 500 companies, major sports teams and home to many respected Colleges and Universities. North Minneapolis has long been a troubled and often forgotten area of the city. As the South and nearby Northeast continue to flourish, North Minneapolis has become a containment area. North Minneapolis is home to the greatest crime rates in the metropolitan area. It is an area of concentrated crime and offers many of its inhabitants little hope for change. The area is in great need of investment, investment in education, community programs, affordable housing and better law enforcement practices.



FIGURE 08 - May 2012, North Minneapolis Tornado Damage

2410 Girard Ave N is the current home of North Star Elementary School. With declining enrollment and diminishing resources the school is one of the 6 Minneapolis public elementary schools slated for closure. This closure will not only leave a hole in the community but also force the neighborhood to travel further for their education. The site is adjacent to the neighborhood Boys and Girls Club, creating a hub for community support for the areas disadvantaged youth.

In May of 2012, North Minneapolis was devestated by a tornado. The disaster was pummeled an already struggling area. The community needed to re-build, however many of its citizens were unable financially. When communities suffer from a disaster, typically we find them coming together. However in North Minneapolis, with a lack of electricity and lighting, looting further troubled the area. The cities mayor enforced a curfew for the area in an attempt to decrease incident.

In recent years, many areas of Minneapolis have enjoyed revitalization. Previously impoverished Northeast or "Nordeast" Minneapolis, has become a hub for young professionals, breweries and great restaurants. The North side has yet to realize these changes. This area of Minneapolis is isolated from the rest, to the south, railroad tracks and highway 394, to the east highway 94. North has long be isolated and treated as such, it is a containment project by the city and its officials. The challenges surrounded the area are vast, and neighborhood restoration projects are greatly needed.





FIGURE 10 - Edible schoolyard, Brooklyn

PROJECT TYPOLOGY

THE CLIENT: MINNEAPOLIS PUBLIC SCHOOLS TYPOLOGY: ELEMENTARY SCHOOL CONTEXT: PLACED IN AN URBAN AREA

Inner-city schools have traditionally suffered from a lack of funding. The schools tend to be older in age and struggle to gain the rehabilitation attention that schools in more affluent areas receive. Historically these projects have been funded with tax dollars. This model is becoming increasingly ineffective. Tax increases are seen as the enemy, and in recent years more and more school referendums have been voted down. In impoverished areas like North Minneapolis, property values are low and result in low property tax collection.

There are many firms that specialize in subsidized funding for public housing. Museums are able to fund projects with member donations and fundraising. Why do we not use a similar model to better the educational experience for our children?

TYPOLOGICAL RESEARCH

Research for this thesis will include looking into the different funding options for a building (ie: public private partnership, community design etc.) primary school buildings and schools that incorporate agriculture into their curriculum. Research will be focused on the process and methodologies of these inclusions.

The following projects/documents will be the highlights of the typological research.

- 1. James F Oyster Bilingual Elementary School Washington, D.C.
- 2. Fuji Kindergarten School Tokyo, Japan
- 3.

JAMES F. OYSTER BILINGUAL ELEMENTARY SCHOOL

TYPOLOGY: ELEMENTARY EDUCATION LOCATION: WASHINGTON D.C. SIZE: 47,000 SQ FT

PROGRAM ELEMENTS

-Accommodate bilingual program -Administrative spaces -After school program space -Computer Lab -Library -Gymnasium -Classrooms -Community Use -Exterior Play Areas

Like many cities, Washington D.C. was running short of operating funds to keep the original James F. Oyster Bilingual Elementary School open. In 1993, the building was falling apart and overcrowded. Renovation was not in the budget, and the building was not longer compliant with building codes (NCCP). These problems inspired the community to lead a 9-year initiative. Parents and Community members were at the forefront of this venture. The search for funds for redevelopment resulted in the formation of a Public Private Partnership. The partners involved were the DC Public Schools, the District of Columbia and LOCR, a development company out of Berwyn, PA.

Tax dollars are typically used to fund the construction of schools but in Washington D.C. not one taxpayer dollar was used in the construction of the James F. Oyster Bilingual Elementary School. The project was funded with an 11 million dollar, 35-year tax-exempt bond. LOCR a specialist in Public Private Partnerships was the master developer, financier and construction manager of the project. Simultaneously, adjacent to the school, LOCR built a 31 million dollar apartment building with 10 million dollars equity and 21 million dollars of private institutional construction/permanent loan. The project was unique in that the land the school sat on was in a desirable neighborhood, an under-utilized portion of the site was able to be sold for the construction of high end residential in order to fund part of the project.

PROJECT IMPLICATIONS

Creative funding is a great way to gain entry into new projects, those that otherwise would be impossible. Looking at these options, grants, tax exemptions and private donors will be key to this being a successful community venture. In addition to funding options, engaging the community in the design and construction of as many elements as possible will also keep the costs down. Of course, allowing the community to build parts of the project creates limitations to what materials and construction methods are allowable. There may be other partners that can co-occupy the site in order to help pay for some of the costs incurred.



FIGURE 11 - James F. Oyster Front Entrance

FIGURE 12 - James F. Oyster Sketch



FIGURE 13 - Fuji Kindergarten School, Tokyo, Japan



FUJI KINDERGARTEN SCHOOL

TEZUKA ARCHITECTS TYPOLOGY: KINDEGARTEN EDUCATION LOCATION: TOKYO, JAPAN SIZE: 14,000 SQ FT

PROGRAM ELEMENTS

-Classrooms -Outside Play Area -Administration Offices -Secure Entrance -Bounaryless Classrooms



FIGURE 15 - Boys activity logged

Fuji Kindergarten is a school just outside Tokyo. The architect has made an attempt to design a school for the children. All aspects of the school were designed with children, their instincts, and the ways children learn in mind. The building is circular in shape. Children love to run and explore, and the circle gives them a natural path to move about the building. Many aspects of the design were made to increase encounters. The architect describes his personal troubles with the increased interaction these young

children have with technology. As technology takes our world by storm, relationships suffer. The decision to place a freestanding washbasin outside of the toilet room allows the children to surround the basin and interact. These thoughtful decisions are seen throughout the building. The classrooms do not have boundaries. Sliding glass walls open the inside out. Children are free to roam



FIGURE 16 - 1st floor plan, roof plan and structural plan.



FIGURE 17 - Kids looking through the skylight, daylighting is one of the key features that makes this school special



FIGURE 18 - Students playing on the nets around trees that pierce the floor structure, nets allow day lighting to pass through to below.



FIGURE 19 - The classrooms are able to open up to the outside, allowing fresh air for the children whenever the weather allows, further removing boundaries.

from their classroom, after all, as the architect explains the circle forces them to return eventually.

Tezuka did not end his research at the project delivery. After all, his son attended the school. Studies of children's activity levels in the school have shown an increase from the traditional school. Tezuka describes the path of a boy they tracked from 9:10am to 9:30am. The photo above/below shows the boys path, he took over 6,000 steps in those 20 minutes.

The thoughtulness seen throughout this building is great. It is impressive to see a work of architecture that really works to solve a problem rather than to cash another check. This project is a great example of a practitioner using education and experience to better a public building.



FIGURE 20 - Fuji Elementary Bird's-eye view

Investigation into Alternative Project Delivery Models I A Response to AIA Integrated Project Delivery Guide

The purpose of this review is to clearly understand the roles each team member plays in the delivery of a building, from site selection to after the construction is completed and the owner inhabits the building. When looking at the organization of the building process it is important to understand the different approaches of the field. Each sen for review due to its inclusion of the steps and the involvement of each member of the team.

IPD, or Integrated Project Delivery is a newer process of building delivery. This method optimizes the involvement of the team, maximizes efficiency, and is shown to increase project success throughout all phases. This way of doing business can involve many consultants and sub contractors, with this process it is not simply left to the architect, owner and contractor to make the decisions. The assembly of an IPD team forms early, it strives to involve all stakeholders in early in the process. Early involvement of stakeholders allows the experts to contribute openly throughout the process. Another advantage of IPD is the shared amongst the stakeholders rather than one or few entities; all members of the team manage the risk of the project. This process fosters greater collaboration and sharing of ideas and work tasks. Traditionally, the building delivery process develops much inefficiency. By separating the responsibilities and tasks into separate "silos," things tend to be lost in the shuffle. With an integrated team the success of the project has a direct correlation to the success of their own interests. The IPD creates a more holistic approach to the building delivery. With an IPD goals are set early with all stakeholders.

With an integrated team there are some challenges that can present themselves. When a team is formed early in the project, the likely hood of loosing a team member is greater. In these cases it is important to have clear pathways to an efficient transition planned. Also, as with any team with multiple voices from different professions and schools of thought conflict can surface. It is important that roles are clearly defined and that all stakeholders respect the team's organization. The owner of the project takes on a more substantial role in an IPD than with a traditional delivery. The owner's participation takes a greater role in both design and problem solving issues that may arise during the construction of the project.

The profession has been good at embracing new technologies that have helped the office run more efficiently. More and more firms are beginning to take a look at the way they do business. The delivery methods have long been the same, IPD offers a new way of looking at a project. The profession has had its ups and downs; firms are now seeing the value in taking a closer look at the way they do business. As firms continue to grow and diversify they can also look towards additional ways of doing business.





USER/CLIENT DESCRIPTION

MINNEAPOLIS PUBLIC SCHOOL DISTRICT ELEMENTARY SCHOOL

144 STUDENTS

- 5 ADMISTRATION
- 17 TEACHERS
- 3 FACILITIES
- 6 FOOD SERVICE

FACILITY UTILIZATION

The school will be used primarily during normal school hours. In addition to schedule class times the school will be used for after school activites, sports, music, theater etc. Spaces will also be offered for community use.

Due to the Urban Agriculture Immersion there will be volunteer and staff usage outiside of the normal school schedule. These uses will be primarily in the agrilculture areas and not classrooms, gymnasium, or administration.

PROJECT EMPHASIS

LET THE COMMUNITY HELP

Generally when a new school is built the public knows about it because of the referendum they vote on or the renderings they may happen to see while driving by the site. This project looks to involve the community in as many of the steps of the process as possible. By involving the community you are creating a building in the community built with pride.

CREATIVE FINANCING

Typically to build a school the district needs to wait until funding is either saved or by increasing the tax burden on the public that reside in the area. This project looks to find creative ways to fund a n elementary school that provides for the community in which is sits. These funding options include but are not limited to grants, crowd-funding, public and private donations and corpoprate sponsorships.

URBAN FARMING IMMERSION

Immersion of urban farming into the curriculum is the emphasis of the project specific to this demographic. While both community involvement and project funding are important in all projects, the emphasis of urban farming looks to solve a community-specific issue. It alsa gives way to another way or the community to continue involvment in this community fixture.

PROJECT GOALS

By creating a public infrastructure building with creative funding, community involvment and having a non-traditional curriculum immersion, this project strives to show the profession a different way of doing business. Investigation of previous Community and Participatory Design projects shows that acceptance in the community will increase.

The professional impact of this way of doing business is that way it will allow a firm to ride out the lows we experiece in the building market. When times are tough, building slows. This model shows a firm that they do not need to wait for a bid request or even look for clients ready to build, all they need to do is find a need, and figure out a way to solve that with creative funding options.

Integration of urban farming into the curriculum serves the community tenfold. Kids get to learn about the food they eat, from how it grows to how to prepare it. In addition, they can bring this produce home for their families tables in a similar way as a CSA works. Budgets for public school lunches are low, and fresh foods often fall victim. When the produce is grown at the school it will make it easier to increase the fresh foods in the diets of todays youth.

PROJECT PLAN DESIGN METHODOLOGY AND PLAN FOR PROCEEDING

Community involvment will be key to this design thesis. Early in Spring Semester I will conduct a Design Charrette in the Minneapolis community choosen for this project. For the success of this project it is imperative that the information gathered from the charrette is taking into consideration throughout the design process. In addition to community involvement, reasearch into other community projects and how they engage the community throughout the build and maintenance process will also be conducted.

Documentation of the project will be done through photographs, sketching, word documents and eventually modeling and drafting software such as Sketchup, AutoCad, and Revit. Presentation materials will be prepared in Adobe Photoshop, Illustrator and Indesign.

Methodology Explored Through

- 1. The Theoretical Premise/Unifying Idea
- 2. Project Typology
- 3. Historical Context
- 4. Site Analysis
- 5. Programmatic Requirements

AUGUST	SEPTEMBER	OCTOBER	
INVESTIG	ATION	PROPOSAL	

PROJECT SCHEDULE

NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY
	PROGRAM					
	SCHEMAT	FIC DESIGN		DESIGN DEVELOPMENT	DESIGN DEV	VELOPMENT
	DESIGI SITE CHAI SITE ANALYSI SPATIAL ANALYS SUN, N SU	N CHARRETTE RACTERISTICS S & CONTEXT IS & MASSING WIND & LIGHT JSTAINABILITY		SPATIAL ANALISIS FLOOR PLANS SECTION ELEVATION STRUCTURAL DESIGN SYSTEMS DESIGN DOCUMENTS & DETAILS	IMAGER	MODELING Y & GRAPHICS REVIEWS







The American public elementary school continues to be a place of great importance and much research has gone into making them safe places to learn. Paying for the school however, has had little updating to meet a modern economy. Schools have faced increased resistance from landowners when it comes to funding these schools. Schools have lost their place in a community unless the resident sends their children to that school. School projects need to do a better job at engaging the community throughout all facets in order to continue advancement towards better learning environments. New funding options allow a public project to engage a community in design, construction, and volunteers for operation and including other community aspects within the walls of the school in order to allow community use and increase their funding. When the communities hands touch the design process, that community takes ownership of the project.

Theoretical Research

Deconstruction is a term coined by philosopher Jaques Derrida. Following the Structuralism period, Post-structuralism or deconstruction as Derrida says, is the movement away from order. There are a few terms coined by Derrida that are important to the conversation. In particular 'difference' and 'play.' 'Differance' cannot be defined but helps describe how individual words do not convey a complete meaning, but rather defers. Play simply describes the instability of words; their meaning or signification is always changing.

To understand deconstruction in architecture I think it is important to first look at its implications on language. Deconstruction is a theory that doesn't place meaning with the writer, the text or with the reader. It simply removes all meaning. While meaning can at first appear in a reading, a closer look allows us to find all of the flaws in the attempted communication. Deconstruction removes any center from language. Derrida states that we have to continually modify and modify again our language in order to make a closer connection, however a complete connection can never be made using language alone. For instance, in conversation I tell you to picture a car; your mind will immediately picture a car. Now, the car I was talking about was a black station wagon, but you pictured a yellow Volkswagen Beetle. It is impossible for me through language to describe the exact car I have picture in my head. I can state to picture a black car and that does allow the imagery to gain some closeness, but there are many details still left behind. Deconstruction removes meaning from a statement by poking holes in everything that the statement failed to mention. Deconstruction has its flaws, it is critical of language and its failures, thus anyone writing critically about anything, are failing in the eyes of deconstruction. As a result, deconstruction tends to be slightly sarcastic and light hearted.

To deconstruct language, a critic must first attempt to find meaning. Once meaning is found, the tensions between are identified and deconstruction begins to remove these tensions and point out potential similarities. Once the tension is removed, and the similarities are shown the meaning is lost. Steven Lynn gives a great example in his book "Texts and Contexts." An elevator door holds a sign reading "seeing eye dogs only." The assumption can be made that the signs purpose is to disallow all animals except for those used to aid the blind. The tension here lies in things that are allows and those that are not. After close examination the apparent directness of the sign begins to fall apart. Does it forbid all people and animals except the Seeing Eye dogs, even the blind persons the dog is aiding? What about other people aiding the blind person, are they allowed? Who is this sign intended for, we would assume a blind person, but blind people cannot see. The sign means nothing. It is clear to see that after breaking down a statement deconstruction can remove any found
meaning. Critics of deconstruction dislike the hypercritical process in which deconstruction demands. It can be a challenging and depressing way of thought. Thomas Foster in his book "How to Read Like a Professor" states, "The goal of those deconstructive readings is to demonstrate how the work is controlled and reduced by the values and prejudices of its own time. As you will have discerned, this is an approach with which I have limited sympathy, at the end of the day I prefer to like the works I analyze."

Derrida makes the statement, "Broadly speaking, deconstruction in philosophy is a project which seeks to expose the paradoxes and value-laden hierarchies which exist within the discourse of Western metaphysics." Deconstruction follows Structuralism, which focuses largely on the order and structure of things, whether it is language or design. Deconstruction however focuses on the play and loss of meaning at work in signification. Deconstruction is not an aesthetic or a style, in architecture is nothing more than a metaphor. Simply breaking the rules does not equal deconstruction. Deconstruction is a deliberate attempt to mess with order, to dismantle connections in search of the meaningless.

Derrida has had a great influence on the world of architecture and its practitioners. He has collaborated directly with Eisenmen in the design process with portions of Parc de la Villette in Paris. Derrida was also a consultant to Tschumi in the preparation for the competition proposal, Tschumi was awarded the project. The park was designed to exist in a vacuum, with no historical influence and little consideration for human scale, it was designed to be a 'non-place' as Tschumi describes. Gehry is famous for his work and deconstruction. With Gehry, Deirrida's term 'Differance' is clear. I do not think anyone would argue that Gehry tends to mess with order and the structure that we are so used to following in architecture. Interior and exterior spaces certainly do not align. Although many starchitects tend to fall into the deconstruction category, I myself do not find it particularly interesting or responsible. As a designer to embrace a lack of meaning really challenges our value as a profession. It is my opinion that the likes of Frank Gehry and Zaha Hadid patronize the public with buildings that create little significance and rarely consider the real costs of their work. Deconstruction claims to work without historical precedence and this very premise has its problem. One cannot simply forget the knowledge gained through experiences throughout their life. Problems with deconstruction start within, the theory struggles to come to any conclusions about exactly what deconstruction is.

Aside from the troublesome nature, there is something to be taken from deconstruction. I do find that meaning cannot be placed solely with the designer, the design or those who experience the project. Additionally, I do not think this misplaced or unfounded placement of meaning has to be a grim outlook. This open interpretation or perception of meaning in a design can be a playful and interesting discovery for the user, and an interesting discovery for a designer. A designer can with the best intentions design with meaning in mind, but in no way can we be assured that this meaning is apparent to the user. Although it is my position that meaning cannot be pinned down, I do not agree with deconstruction in that there is an absence of meaning. Meaning is

My Theoretical Approach

Meaning can mean many things. Meaning can be the relation of form to something deeper, something metaphorical. It is my approach that meaning takes different forms depending on the context. Theory certainly has its place. As for this thesis project, meaning in my eyes comes in the design of a strong learning environment that fosters growth, comfort and an inviting place to learn. I tend to take a far more practical and relatable approach to design. It is far from my belief that architecture has to be unattainable or elite. I think it is an outdated view of those fearful of loosing relevancy. Good architecture can be attainable, sustainable, efficient and achieve the goals and needs of a client. My approach to this project is to design just that, a sustainable and efficient school within a reasonable budget paid for, designed and built by the community it serves. Meaning in this case, is in its success to foster a safe and inviting environment for children to flourish. Meaning in this case, comes from the success of the learning environment. Meaning is in the activity the architecutre fosters.



Literature Reviews

1. Integrated Project Delivery: A Guide Published by the AIA in 2007

The purpose of this review is to clearly understand the roles each team member plays in the delivery of a building, from site selection to after the construction is completed and the owner inhabits the building. When looking at the organization of the building process it is important to understand the different approaches of the field. Each of the different organizational approaches go through the steps a little differently. One of the major differences is the involvement of each team member through each step. Looking at the AIA's guide to the Integrated Project Delivery, these steps will be shown clearly when choosing IPD as the project delivery method. This article was chosen for review due to its inclusion of the steps and the involvement of each member of the team.

IPD, or Integrated Project Delivery is a newer process of building delivery. This method optimizes the involvement of the team, maximizes efficiency, and is shown to increase project success throughout all phases. This way of doing business can involve many consultants and sub contractors, with this process it is not simply left to the architect, owner and contractor to make the decisions. The assembly of an IPD team forms early, it strives to involve all stakeholders in early in the process. Early involvement of stakeholders allows the experts to contribute openly throughout the process. Another advantage of IPD is the shared amongst the stakeholders rather than one or few entities; all members of the team manage the risk of the project. This process fosters greater collaboration and sharing of ideas and work tasks.

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2. Why Isn't the U.S. Better at Public-Private Partnerships?

In British Columbia Public Private Partnerships, or P3's, are becoming more and more popular. In particular, these P3 projects are rebuilding their infrastructure. Not only are these projects being completed on time, but also actually ahead of schedule, something the profession is not exactly used to. It is creating a interesting problem, the projects are being completed before operations funding is put into place. They are beginning to monitor and regulate more closely how early a P3 project can begin.

P3's have had far more success abroad, U.S. activity only accounts for 9% of global P3 projects (Rawley; 2013). Finally this country is beginning to see the value in this delivery model. In the D.C. metro there is a recently completed P3 project that would have cost taxpayers billions of dollars but they were able to fund the project largely through private investments. Lack of knowledge and experience is blamed for the lack of P3 projects in the U.S.

Public Private Partnerships offer a creative financing option for governments that are falling short on funding. It is important that this country begin to look at new and innovative ways of funding projects that typically place a large burned on the tax-payer. There will forever be a challenge getting tax increases in order to pay for projects that the public simply finds little justification no matter the need or reason.

3. Expanding Children's Food Experiences: The Impact of a School-Based Kitchen Garden Program

With an increase of illness and oppression in the United States as a result of poor food education and healthy food availability, the review of this article serves the purpose for this thesis project in aiding the understanding of the effects of a school garden and cooking program on the health and wellness of the students the school serves. This study included 764 children ages 8-12 over 2 years. This thesis project looks to correct the food desert issues that plague Minneapolis' north side.

As we all know the foods that are best for us are not the typical preference of a child. Plant-based foods often do not make it into the daily diet of a child due to the bitter tastes associated. It is found that early introduction of these plant-based foods are key to increasing not only willingness to try these foods but also in developing life-long healthy eating habits. This particular study found that the increased willingness to try new foods is temporary and that continued exposure was necessary for a long-term habit.

There are a few differences in the school garden programs found currently. The main differences are in whether cooking is also integrated into the curriculum. It is found that the inclusion of a cooing component provides a strong correlation with success of the program as a whole. The article differs these two programs with the terms "edible garden" as a program that grows and maintains gardens, and "kitchen garden program" describes the inclusion of cooking. It is noted that there has been a uptick in both interest and implementation of these programs across our nation but thorough research still needed to be done in order to document the real changes and impacts on today's youth. Early findings show surprising supplementary advantages associated with these programs. In addition to general knowledge of both foods and nutrition, there is also seen an increased ecoliteracy and learning through experience. Preliminary observations show involvement in these programs did show an increased interest in trying new foods in the children involved in this experience.

The participants added 45 minutes of gardening and 90 minutes a week of cooking into their curriculums for the duration of the study. Children were given the opportunity to participate in all aspects of the gardening from planting, weed management and design of the garden itself. This holistic approach to the program looks to also aid in the success of the project and interest by the children. Weekly menus were designed around the availability of the produce the garden offered. After the children attended class with specialists they were able to share their creations with staff, teachers, other children as well as volunteers.

Two main findings were concluded by this study as a result of the interaction with food, the children showed an increased interest in new foods, and the children were able to better describe these foods. Positive lasting change was undetermined without further research but it is noted that any increase in the interest to try new foods should be seen as a positive movement towards healthy and more diverse diets. Another positive finding of this research was the increased community involvement through the role of volunteers and great interest was noted.

The evidence noted in this article provides great encouragement that this thesis project is relevant and that a completed project with this community engaged and urban agriculture immersion into the curriculum is both viable and have a sustainable and positive outcome.

4. The Design of Elementary Schools

Main goals of Design as listed in article

-Child-Scaled

-Flexibility

- -Learning Beyond the Classroom
- -Secure Environment
- -Community Engagement
- -Civic Presence

The design of an elementary school is quite different than any other building we construct. This building must be safe, inviting, promote learning and create an easy transition to a new and strange place. School is perhaps the first institution children enter without the comfort and protection of their parents.

Creating an environment scaled for a child is possibly the most important consideration for an Architect designing an

elementary school. A method of organizing schools is by creating "Neighborhoods" is one way to order and scale a large institution spatially, by clustering spaces to foster strong relationships. These neighborhoods can be grouped in a great number of ways that cater to the uses within the curriculum. Just as our cities are designed with a connectivity of public and private spaces, so too can schools. Circulation is a great consideration when the need to move hundreds of children through a building is necessary, 25% (O'Donnell; 2010) of an American school is often for this very use.

A child never stands still, and the spaces we design for them need to be as flexible as they are. A classroom with the ability to adapt to the lesson plan is extremely important. This flexibility pertains to all aspects of the classroom including but certainly not limited to the lighting, furniture and the technology in the space. Without extensive research it is difficult for the designer to know exactly how the spaces in a classroom will be utilized, it goes much farther than simply meeting the square footage requirements for occupancy loads. Class size can also dictate the projects the class is able to do, for example small classrooms need to constantly change in order to move on to the next lesson due to size constraints. On the contrary, larger classrooms allow stations to be set up and allow for longer projects that the class can come back to at a later time for work and completion. Square footage requirements range from 30 square feet per child and up to 45-50 square feet (O'Donnell; 2010) for larger classrooms. Adjustable furniture is by far the best option for a classroom as developing and growing children sizes vary greatly, however budgets often restrict these to a one-size fits

all offering. With modern research we have become more aware of the benefits of ergonomics and the negative side effects associated with poor posture and a general lack of comfort. In general, comfortable people are more productive and attentive. Furniture choices should accommodate a diverse curriculum in order to not hinder learning in the classroom. Acoustics must not be forgotten, in addition to the design promoting hearing for the lesson plan, background noises must not be too loud either. The American National Standards Institute has decided that 35 dBA (O'Donnel, 2007) as a maximum noise level for background noise in a classroom. In an elementary school color is important to consider. It is well documented that certain colors can create certain moods and experiences. Recent research has shown us that some colors may even increase attention and performance. Proper lighting is something than far too many buildings lack. In a leaning environment lighting should be glare-free and offer appropriate lighting flexibility for the ever-changing classrooms we have been discussing. Day lighting should be utilized whenever possible and shading devices must be employed with optimal control for the user.

Devices have infiltrated the American classroom with great numbers in past years. Classrooms now need to accommodate all of this technology. Designing for technology that is always changing is a challenge, and this must be considered for retrofits and remodels in the future. Designated computer labs will grow increasingly hard to find as devices become more mobile and capable. All surfaces in a classroom need to be considered a stage for the presentation of the curriculum. "Every square foot of the campus should be considered a setting for learning" (O'Donnel; 2010). Circulation spaces should be considered as more than just a place to move about, strategic placement of seating surfaces can accommodate a flexible learning environment. Spaces for meeting and learning should not be limited to interior spaces only, getting children outdoors is full of its own benefits. Site design should be as thoughtfully considered as the interior spaces of a school as another option for gatherings and learning.

Security is an issue in schools more than any time throughout history. Security however, does not need to be blatant. Schools need to be safe-havens and low-stress environments. The two largest considerations in terms of security are bullying and intruders. There are proactive design decisions that can deter intruders and may not require more imposing and unsightly security processes such as metal detectors and the like. New school design has led to a decrease in the number of entrances; older schools had a large number of doors. A designer should consider the spaces near entrances carefully. Placing active spaces with eyes on entrances can be enough to deter an intruder. Instead of grouping all of the administration staff in one place, distributing these offices across the campus is another way to decrease the occurrence of bullying and intruders. Bullying tends to happen where sight is limited, decreasing these corners and using more transparent design strategies and materials the designer can limit hidden areas of the school.

A school is a fixture within a community. Often the school will house activities not limited to those who attend. Most often

the taxpayer investment is required to build a school. Other services should be considered to maximize utilization thus maximizing return on the investment for the community. Spatial planning should thoroughly consider utilization of spaces in accordance to not only the time of day each space is used but also who will be using the space. Spaces open to the public during or after hours should consider access and limited access to unused spaces within the building.

Placement and context should be carefully considered when building a school just as it should in any building project. Establishing a role in the community for a school can create a great impression for residents and visitors. School design must consider more issues and parameters than ever before. Excitingly, schools are becoming better-designed spaces with far more intention and thoughtfulness than in the past.

5. Crowdfunding ArchitectureCustomized Research Report Prepared For The AIA January2013

Crowdfunding has taken the world by storm. With the accessibly of the internet anyone can work for finance a project with other peoples money. It is an exciting method to fund any project and it can gain traction and excitement with people that you would never be able to have reached in the past. The world is now your potential investor. Individuals are able to invest in a project with small amounts of capital. Crowdfunding is newer to Architecture, but is creating a new and exciting way to engage the public with the built environment. This project creates a closer relationship with the Architect and the public that he/she serves. The stories behind the campaign have the ability to reach millions of people, creating buzz and going viral can boost a campaign to instant success and funding. These small contributions have already shown the ability to fund projects of all sizes, from pedestrian bridges to high-rise buildings.

Differentiation from crowdfunding and fundraising requires both social networking, and the ability for the investor to gain something in return. Social networking is the vehicle driving this limitless number of connections. The network begins with family and friends but quickly reaches the family and friends of those connections, and the reach grows exponentially.

There are three basic types of crowdfunding, donation-based, reward-based and crowdfunding with a return on investment. Donation-based crowdfunding is strongly associated with an emotional connection to the cause or story. For example, a campaign could be created in order to aid the finance of cancer treatment for a child. The story will immediately hit home, and with the possibility of a small donation as little as a dollar, anyone can now help. Reward-based is the most common. This type tends to look a lot like most of the Kickstarter campaigns most of us are familiar with. Often times these campaigns offer a new product centered on a new business of an individual. With different contribution amounts you would receive an applied value in goods in return for your investment in the business. This is the type of crowdfunding often utilized to fund a museum for instance, often times offering a reward or membership in return. Crowdfunding can be made as an investment. Crowdfunding with financial returns is different in that the investor must carefully consider the return on his/her investment. The reason to invest is different than in the other two models. It is thought of as an invest just as you would invest in the stock market. Currently there is a \$1 million limit for these crowdfunding campaigns (Sebastian, Grell; 2013).

Challenges surrounding crowdfunding as listed in the article

- -Opportunity for architects to develop community relation ships/promote design services
- -Provides the opportunity for regional/neighborhood improvement projects
- -Apparent and attractive market-driven rewards
- -Pre-sale "Price Points"; the capital formation process is very flexible and easily adaptable to different circumstances
- -Architecture is creative by nature, which matches crowdfunding as a creative capital formation
- -The right crowd supports the right projects; builds community support

-Broad visibility

-Emotional appeal

There are of course some challenges surrounding crowdfunding of anything, and in particular with architecture projects. It is easy to gain attention of people and to create an emotional connection; it is another thing to get people to open their wallets for the cause. Due to the large capital investment required for most architecture projects, these small donation driven models could create an issue surrounding the time it takes to fund a project. There has been some movement to seek larger investors in the form of fund matching.

Appeal to crowdfunding for the profession should include the reach of the masses. These campaigns often are focused on a local community. Community engagement is always a positive for a firm. It is as much advertising as a means to make money for the firm while gaining a positive position within the community in which they reside.



Project Justification

This project is important for both the profession and for community development. When building slows, firms need to survive. Seeking projects with alternative funding options is a way to ride out the storm. Rather than waiting for clients to come to them, a firm can actively seek out projects using Crowdfunding, Participatory Design or a Public Private Partnership to stay viable. Crowdfunding has become a popular source of funding all sorts of projects and goals, it will have an increasing impact on the world of Architecture. With a diminishing tax base, creative funding of projects with any combination of crowdfunding, P3's and Participatory Design will be required.

The history of community redevelopment projects has seen many failures. Many times these failures are due to a lack of community engagement with the project. Involving the end-users in the planning, designing and construction of a project will increase the success of the project. All of these funding options allow the firm to get out into the community and engage with the public. Involvement is as much about staying profitable as it is about helping the community around the firm. This project has relevance and something to offer both the profession and the general public. At some point in every tax-payers life, they will be asked to increase their contribution in order to pay for a school. Already has there been promising work in the public sector using non-traditional funding options. However, this is still a new way of thinking in the U.S.

Today, in this wealthy country, we are still dealing with the issues of how to feed kids and help them learn. Studies show a strong negative correlation with youth hunger and poor school performance. There is also a growing participation of schools incorporating gardening and cooking into the curriculum even at early elementary school settings. If this project can show that great school can be designed and built with largely non-traditional funding, and feed its community at the same time it will be a success.



Jordan: Ethnic distribution

Jordan: Age distribution



Social, Cultural and Historic Context

There is a movement in this country towards smaller schools with a more specific curriculum. Smaller schools show to have stronger attendance and higher success rates among students. The small school becomes a community in which people get to know one another. This sense of community increases accountability for student's administration and teachers alike.

2400 Girard Ave N is in located in Jordan neighborhood of North Minneapolis. The Jordan neighborhood is an urban area approximately 2 miles from downtown Minneapolis. Poverty in this area approaches 30% and unemployment nearly 15%. The last census shows that the Jordan Neighborhood has 9,49 residents, a growth of 18% since the last measurement (U.S. Census 2010). Ages 5-17 show both the greatest percentage of population as well as the large growth. Public education is one of the first institutions our young people encounter. It is no surprise that throughout our nations history we have worked to better the quality of the schools in which we send our children. The future of our nation largely rests on the quality of the education we provide. Schools have many influences, thos include political, social, new technology and trends, and a greater understanding the surrounding environments have on our learning abilities (Baker, 2012). However, we still seem to be plagued by the same ideologies and practices of schools designed in the past. A new focus is being placed on the systems used in school design specifically, lighting, HVAC and acoustics.

A look into the history of school construction is necessary to understand the successes and the failures that have brought us to today. The progression of the American school design has shown us interesting examples of real world testing. For many of the past theories on best school design a project is constructed and tested against its claims, often times resulting in further research in the failures and success of the project and theory. When approaching any design, it is important to look back at the historical precedents and react to what our profession has shown us.

Due to spatial requirements of increased enrollment, the one room schoolhouse was quickly outgrown in many places. This call for larger schools opened up for new ideas in design. Many early ideas were of order and standardization. This idea resulted in straight lines, row after row of desks in a particular order and orientation with windows on either side. This standardization became required after the end of the Civil War and the beginning of the Industrial Revolution (Baker, 2012). New expectations were that more children needed to gain an education in order to progress as a nation. The result was dark, utilitarian and depressing buildings. The idea of a school was to pack as many children into the classroom as possible.

The beginning of the 20th Century brought new research and more new trains of thought about the appropriate design of a school. This era marks the beginning of the considerations of HVAC systems, lighting and acoustic standards. Automatic HVAC systems were becoming available and well accepted. A statement in 1910 by A.D.F. Hamlin describes the basic principles of the thought regarding HVAC in schools at the time. He said, "Abundant quantities of warmed fresh air should be introduced through ducts to each schoolroom, and care must be taken that



FIG A FIG C LIGHTING AND SEATING OF SCHOOL ROOMS.

The upper drawings show ideal designs for school rooms, one to seat 48 and the other 40 pupils. Dimensions given, also the arrangement of windows, heat and vent flues, door, etc., correspond with the best present day practice. Some authorities insist upon two exits, and such should be the case in non-fireproof buildings.

Fig. A, illustrates imperfect lighting with dark spaces between windows and in corners.

Fig. B, is a vertical section through the school room, illustrating the light shut out near ceiling by transom bars and fancy top windows.

Fig. C, is a similar section showing correct location of windows with reference to floor and ceiling.





the ducts are of sufficient area and directness for passing the required amount. Ducts should also be provided for removing the vitiated air" (Hamlin, 1910). Due to a lack of electricity, daylighting was always a consideration of the times. Even at this early time Architects were very mindful of orientation and design concepts to best light a room naturally. Floor to window ratios were clearly defined at the time for best daylighting. Windows allowed more than simply daylighting, it was thought that children need a place to rest their eyes and the windows created a view in order to facilitate this need. This time also marked the beginning of electrical lighting of buildings, however due to their cost, electric lighting was minimal.

There was a lot of schools build in the 1930's and 1940's even though the country was not economically healthy due to the depression. The Public Works Administration provided much of the financing (Baker, 2012). Attitudes were beginning to change towards a more child-centered education model although buildings were still constructed with outdated methods. With further research and documentation, architects began to change their practices. After the ideals set forth by Marla Montessori and John Dewey, architects started to consider the role architecture played in the learning environment, including the idea of open-air schools (Baker, 2012). Open-air schools describe they response to daylighting, circulation and the implementation of outdoor learning environments. There was an important shift in school design to adapt to a modern style of lesson planning. The 1930's brought an interest to the psychology of a school, specifically understanding how a building can enhance or hinder the way children learn and behave.

After WWII population rates grew exponentially. The need for new schools and space came unexpected and without warning. \$20 billion was spent on schools from the culmination of WWII until 1964, approximately 4 times that spent the same time prior (National Council on Schoolhouse Construction, 1964). Student population grew more than \$2 million. New and higher standards accounted for much of the increase in cost it took to build a school in additional to larger spatial requirements. Schools were no longer of the classic style, they were modern, had flat roofs, lots of glass and air conditioners were now being installed for additional comfort. Architects were very interested in designing the most efficient school to meet the demands of the time. The new designs were both cheaper and quicker to build.

New standards of HVAC, ventilation and the introduction of air quality emerged. The new modern designs were already maximizing daylighting due the increased use of glass, now the importance of air quality was on the architect's mind. Due to the size and new open-air designs proper ventilation became more challenging. At this time the requirements for air quality were more closely evaluated. The HVAC field did react and quickly manufactured systems to meet the new designs.

With the introduction of fluorescent lighting, schools could now be artificially lit at a reasonable cost. After further research artificial lighting requirements were more than doubled as a standard from 30 foot-candles to 70 (Building Research Institute, 1959). Today have a far better understanding of lighting in terms of material choices and finishes regarding glare and transparency.

Children are noisy, the architect has to be very mindful of acoustics when designing a school. Just as materials are better understood with lighting, soft materials help dampen sound. With hard surfaces increasingly popular in school design for various reasons, sound becomes a more complex issue to resolve. Acoustics has historically been left aside in many typologies, but recently it is given as much consideration as mechanical systems, lighting and ventilation. Acoustic considerations also need to include background noises, while some can be tolerated it should be managed.

After the baby boomers, schools saw a decline in enrollments. Facilities were underutilized but aging and needing updating. It was a difficult task to fund a renovation project on a large school with small enrollment numbers and lesser funds available to the districts. It was estimated in 1985 that our nations schools needed \$112 billion in updates just to bring them to "good overall condition" (GOA, 1995). ADA compliance and asbestos remediation were large costs that saw small benefits to the appearance of schools or in upgrading outdated mechanical systems and technologies. Temporary classes were used when enrollment did increase and space was limited. These classrooms were found to be less temporary and not effective learning environments due to poor lighting, ventilation and unacceptable toxins in the air as a result. LEED was introduced in the 1990's and made some changes in the design process. LEED standards starting shining light on the oversights of school design in the past. New goals in design made schools healthier places, this however is not limited to schools. Energy costs have historically been cheap in the U.S. Low costs gave little incentive to conserve. The 1990's and 2000's brought increased interest in more energy-efficient buildings. Many schools began looking at solar energy as a solution.

The future of school design looks exciting and bright. With

more research-based evidence it is easier to see all of the benefits of a holistic approach to school design. There is an overall attitude shift in our nation towards a more responsible way of living. We also have a better understanding of how our environment can change the way we live. All architectural design will continue to be a process of experimentation. Just as school curriculums change, so must the architect. To design for the future we must keep our finger on the pulse.









SITE NARRATIVE & ANALYSIS

Upon removal of preconceived notions of the area, it is a surprisingly park-like neighborhood and welcoming area. The neighborhood directly to the sites West is a whimsical disruption of the otherwise grid like structure of Minneapolis streets. These wandering streets create a playful and unique experience.

The neighborhood is full of old growth trees lining the sidewalks and canopying the streets and sidewalks. The boundaries of the site are no exception, but there is little greenery in the middle of the side except for some overgrown shrubbery against the building and in the parking lot islands. Grass is overgrown in areas and fill the cracks of the sidewalks and roadways.

Upon further investigation and travel throughout the neighborhood it is apparent that people are trying to keep unwanted people out, there teds to be a lot of fences. Primarily these fences are galvanized chain-link. This gives a visitor a feeling that the neighborhood may be unsafe, or at least it has had trespassing related crimes in the past. Many of the fences do have vines growing which does make them appear slightly softer. During the middle of the day there are people on their porches and walking the sidewalks.

The site has a strong connection to Jerry Gamble Boys and Girls Club, Glen Gale Park and is just a block away form the Minneapolis Public Schools District Office. These are community projects that engage the same demographic as those using the school.

Parking lots on the site are visible but unsightly; they are also enveloped in old chain-link fences. The building attempts to provide coverage for those waiting for the school bus, however it is a large and heavy concrete covering, it feels like an old parking garage. The North Side of the site features an unattractive loading dock, another parking lot and a playground set. On the Southwest corner of the site sits another play structure next to the staff parking lot.

The current school structure lacks a proper entrance. On the east side of the building, along the adjacent neighborhoods alley, is an entrance amongst the back of housing and garage doors.

The bordering streets are fairly quiet with low levels of

traffic. The site sits just blocks from Broadway Avenue, a major corridor through the city.

Considerations of the sites current condition will include creating views from and onto the site. It is found that often times creating hard barriers welcome crime. Of course a school needs security, options will need to be explored for an attractive and safe solution for barriers around outdoor child-sed areas. With the community connections this site offers, it will be important in the design of this project to engage with its neighbors with views, paths and program-likeness. Parking lots need to be better planned, currently they are placed throughout the site with little consideration apparent. Security staff and students is primary importance when traveleing accross the school grounds. A proper entrance with views from a more significant roadway will allow for proper navigation and views of the entrance for safety reasons.



It is clear to see in the map to the left that the gridded street layout is disrupted near the site. There is a disctinct pattern of traffic and therefor a gridded structure to its overhead view. At first glance one might think that a change in topography would be the reason for this disruption, however this is not the case. Simply, the man charged with designing this neighboorhood was famous for breaking these rules of order.

The sites borders resemble a transition between the grid and the wandering streets of the neighborhoods sits between. It becomes an interesting site and opens the design and layout to be playful with these elements.

Structures and thus materials around the site are mostly residential in nature. Typical brick, stone, stucco and siding products can be found. Almost all other insitutional and commeriial buildings are brick with glass storefronts. With the exception of parking lots, the grounds are largely green grass.



section

The map on the left shows both tree canopy and the topography of the neighborood. As seen in the photo there is litte topography change on the site. This low slope will create a large building area with little earthwork required for construction.

Tree cover is nice along streets and in the neighborhoods but the site itself is largely covered by the current building and parking lots. The new design by its nature will have to carefully incorporate more tree cover and vegitation.

Being that the surrounding neighborhood is largely residential, building heights are lower than the tree canopy

creating a comfortable human scale. The influence of the building heights and character would not warrant a tall imposing building. It is a neighborhood, and thoughtful consideration of the sites context should be given when both massing, style and material choice.





A school designed for year around community use needs to consider wind patterns throughout the entire calendar year. This data covers over 40 years of wind direction, speed and frequency date in order to supply historic trends. It is evident from the windrose diagrams above from 4 different times of the year that the winds are predominately from the NorthWest. During the summer months however, warm winds from the SouthEast are the primary considerations. Wind needs to be both designed for the capture and diversion. A design team can utilize wind for natural ventilation and wind generators. Wind can also be troublesome, luckily the winds aren't as strong in Minneapolis as many regions of the country. This particular site has the advantage



of being in an urban area full of trees and buildings to cut down on strong winds.

Wind can be diverted and managed with careful building design, earthwork, vegetation etc. The site is already well protected to the NorthWest with heavy tree cover to shield the site of harsh cold winter winds. Building placement towards the rear of the site would allow for capture of warm summer breezes.





Map Unit Description: Urban land-Lester complex, 2 to 18 percent slopes---Hennepin County, Minnesota

Hennepin County, Minnesota

L52C—Urban land-Lester complex, 2 to 18 percent slopes

Map Unit Setting

National map unit symbol: gj3r Mean annual precipitation: 23 to 35 inches Mean annual air temperature: 43 to 50 degrees F Frost-free period: 124 to 200 days Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 75 percent Lester and similar soils: 20 percent Minor components: 5 percent Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Moraines Parent material: Loamy till

Description of Lester

Setting

Landform: Hills on moraines Landform position (two-dimensional): Backslope Down-slope shape: Linear Across-slope shape: Linear Parent material: Till

Typical profile

Ap - 0 to 7 inches: loam *Bt* - 7 to 38 inches: clay loam *Bk* - 38 to 60 inches: loam *C* - 60 to 80 inches: loam

Properties and qualities

Slope: 6 to 18 percent Depth to restrictive feature: More than 80 inches Natural drainage class: Well drained Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr) Depth to water table: More than 80 inches Frequency of flooding: None Frequency of ponding: None Calcium carbonate, maximum in profile: 25 percent Cursum maximum in profile: 1 percent

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 6e Hydrologic Soil Group: 8 Other vegetative classification: Sloping Upland, Acid (G103XS006MN)

Minor Components

Kingsley

Percent of map unit: 5 percent Landform: Hills on moraines Landform position (two-dimensional): Backslope Down-slope shape: Linear Across-slope shape: Linear Other vegetative classification: Sloping Upland, Acid (G103XS006MN)

Data Source Information

Soil Survey Area: Hennepin County, Minnesota Survey Area Data: Version 11, Sep 18, 2015



The soil found natively at the site is Mollisols. Naming comes from the Latin word mollis meaning soft. It has a dark and thick surface layer rich in nutrients. The three suborders occuring in Minnesota are Aquolls, Udolls and Utolls. Aquolls are wet soils found in native priairie lands. Naming of this suborder comes froms the Latin word aqua, of course meaning water. The largest concentration of these soils are found in the Red River Valley. They are great crop soils. Udolls, meaning humid from the Latin word udus. This soils is found in most of the Western and Southern parts of Minnesota. Ustolls is a dry soil found in the Praires of Minnesota. Naming comes from the Latin word ust meaning burnt. These souls are found largely in Southwest Minnesota and are also good crop soils. The site has been developed for some time now, we can be confident some of the soils have been distrupted from native conditions. Soil test will be necessary for new developmet on the site.

The slop on the site is less than 5%, as a result drainage will be a concern. Drainage concerns will need to be addressed for both building drainage, hardscapes and the gardening areas. Due to the low slope and soil types there is only small amounts of errosion on the site now, these issues are due to improper grading and will be easily fixed upon new construction. There is no standing water permanantly located on the site. It would be only after susbstantial rainfall or snow melt in which the site would be impacted. The slope will also come with advantages. Construction costs will be lower due to the lesser need or earch work and fill brought to the site. Lower slope allows for more accomodation of activites. Schoolyards, playgrounds, sporting fields and gardening are all easier on flat ground. Plant cover is primarily turf grass with little advantages to avoiding errosion. There are trees planted along the boundaries of the site. Additional trees should be considered in the middle of the site for many reasons but also for erossion management. Tree plantings will need to consider sunlight for both gardens for growing and daylighting of the school building itself.

Soil Suborders of Minnesota









Minneapolis Climate Graph - Minnesota Climate Chart



Minneapolis weather averages

Annual high temperature:	55.1°F
Annual low temperature:	37.2°F
Average temperature:	46.15°F
Average annual precipitation - rainfall:	30.64 inch
Days per year with precipitation - rainfall:	112 days
Annual hours of sunshine:	2607 hour
Av. annual snowfall:	55 inch

CLIMATE DATA

Minesota and the upper-midwest have some of the most extreme temperature swings globally. It is not uncommon to hit 100 degrees in the summer, and negative 20 in the winter. Such an extreme climate clearly need response by the Architect. Material choices, orientation as well as passive and active systems all need to work together to build a comfortable and efficiet building that the owner, the school district in this case can sustain. Snowfall is a concern for structural loads, and ice can wreak havoc on building materials and foundations. The sun is in the South for much of the year. In summer months it can be high in the school and create too much heating throughout our long days. Summer sun can be low in the sky and trees and other buildings can really limit solar gain when we need it most.

Minneapolis is a relatively sunny location. With less than a third of the days receiving precipitaiton, sun can become an issue. Sun also presents a problem with the drastic swings in temperarture throughout the year. In the winter months, we would like to take advantage of as much solar gain as possible. During summer, when temperatures are often in the 80's nd 90's, we need to manage toe solar gain. Building placement needs to


be carefully considered to utilize sun for solar gain and daylighting purposes while using shading devices during the summer heat. School gardens will also need to be placed in order to grow a variety of plants, some will need direct sun and others may require very little. The slope of the site is minimal and does not tilt the site towards or away from the sun.

Shading is a consideration for both interior and exterior spaces of the building. Depending on room use, more or less shading will be required by either vegetation or using shading devices. Trees that provide shade is nice where people gather outside, it needs to at least be an offereing for comfort of the users of the site. Wind speeds are not typically high, but will allow for sufficient natural ventilation. The site's current conditions are suitable for blocking the frigid NorthWestern winter breezes.

Elevated humidity is not typically a concern in the area. There are a few times throughout the summer months that humidty can cause discomfort for people, but rearely sustained or high enough for material damage. On the other hand, winters can become extremely dry and humidity control will is required in interior spaces of buildings in this climate.

Employees

Administration

Principal	1
Assistant Pricipal	1
Couselor	1
Nurse	1
Secretay	1
TOTAL	5

Teaching Staff

Pre-K	3
Kindegarten	2
!st Grade	2
2nd Grade	2
Special Needs	2
Physical Education	1
Art	1
Music	1
Horticulturist	2
TOTAL	16

Support Staff

Custodial	3
Food Service	6
Technology	1
TOTAL	10

TOTAL EMPLOYEES 31

Rooms				Gardens/Gree	nhouse
				Hours of Use	7am-9pm
Administrative Offi	ces			Square Foota	9000
Hours of Use	7am-6pm			Parking Lot	
Square Footage	1600			Hours of Use	7am-9pm
Classrooms				Square Foota	28
Hours of Use	8am-4pm			Janitorial	
Square Footage	17,750			Hours of Use	6AM-9PM
Break-Out Spaces				Square Foota	1700
Hours of Use	8am-4pm			Storage	
Square Footage	12000			Hours of Use	-
Community Rooms				Square Foota	2000
Hours of Use	7am-9pm			Growing Space	es
Square Footage	3400				
Lunch Room					14000
Hours of Use	7am-9pm	11am-1pm		Running Tota	59,430
Square Footage	5690			Circulation	
Kitchen				Hours of Use	7am-9pm
Hours of Use	6am-3pm			Square Foota	16400
Square Footage	1935	1/3 lunch room size			
Break Room					
Hours of Use	7am-5pm		2 lunch periods	Utilities	
Square Footage	1105			Hours of Use	-
Gymnasium				Square Foota	9500
Hours of Use	7am-9pm				
Square Footage	5100			Project Total	85,330
Technology Lab					
Hours of Use	8am-5pm				
Square Footage	750				
Library					
Hours of Use	8am-5pm				
Square Footage	4600				
Entrance					
Hours of Use	7am-9om				
Square Footage	600				
Restrooms					
Hours of Use	7am-9pm				
Square Footage	1200				

INTERACTION MATRIX

Spaces	Admin Office	Classrooms	Break-out	Comm. Rooms	Lunch Room	Kitchen	Brea
Admin Office		x	X	х	х	х	
Classrooms	x		Х		х		
Break-out		x					
Comm. Rooms	x				х	х	
Lunch Room		x		х		х	
Kitchen	х	x		х	х		
Break Room	х	x				х	
Gymnasium		x		х			
Tech Lab		x	Х				
Library	x	x	Х	х			
Entrance	x			х			
Restroom		x		х	х	х	
Garden	x				х	Х	
Parking Lot	х	x		X			
Janitorial	х	x			х	х	
Storage					х	Х	

ık Room	Gymnasium	Tech Lab	Library	Entrance	Restroom	Garden	Parking	Janitorial	Storage
Х	х	X	х	X	X	х			х
х	x	X	х		X	Х			
		X	X		X				
	x			Х	X		X		Х
Х					Х	Х			Х
Х					Х				Х
					Х				Х
			Х		Х				
		Х			Х				
							Х		
									Х
					Х				Х
				Х					
									Х
	Х					Х			

INTERACTION NET



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This location was the previous home of Northstar Elementary school, the school closed in 2008. Primary reasons for closing the school include increasing maintenance costs for an aging building and the beleif of a myth amongst district leaders that fewer, larger schools were more efficient.

This neighborhood is begging for a small neighborhood school to send their children too. With the move towards incorporating pre school in to elementary schools this school will accomodate 144 pre-k through 2nd grade students. The Jordan neighbohood is located just north of downtown Minneapolis. Over the past few decades interesting demographic shifts have been seen. Incomes have decreased and the number of children under the age of 18 as risen, both at a larger pace than the rest of the city.







JERRY GAMBLE CLUB





This project highlights the possibilities of completing public projects utilizing the money of local strategic partners. This project model will work anywhere, not only in struggling neighborhoods. They key is to identify a local need that matches with the interests of local partners.

DISTRICT

			ANNUAL		ANTICPIATED
L(1	SITE LOCATION LIORDAN ELEMENTARY	CITY MINNEAPOLIS	CORP. GIVING		CONTRIBUTION
- 2 3 4 5 6 7 8 9 10 11	GENERAL MILLS, INC CARGILL, INC TARGET CORPORATION CARDINAL GLASS INDUSTRIES, INC M.A. MORTENSON COMPANY FIELDING NAIR INTERNATIONAL LEJEUNE STEEL COMPANY KASOTA LIMESTONE FIRESTONE BUILDING PRODUCTS XCEL ENERGY INC	GOLDEN VALLEY WAYZATA MINNEAPOLIS EDEN PRAIRIE GOLDEN VALLEY MINNEAPOLIS MINNEAPOLIS KASOTA ANOKA MINNEAPOLIS	\$ 57.6 MILLION \$ 57.9 MILLION \$ 208 MILLION \$ 650,000 \$ 39 MILLION		\$ 4,000,000 \$ 2,500,000 \$ 2,500,000 \$ 250,000 \$ 250,000 \$ 25,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 50,000 \$ 50,000
				TOTAL CONT.	\$ 10.175,000
				CONST. COST	\$16,840,800

\$ 6,665,800



57,960 lbs of produce annually

When sizing the greenhouse and rooftop gardens both growing methods and how many people it serves needed to be considered. This building will hold 175 total staff and students. By allowing approximately 50 square feet of growing space per person, the greenhouse is sized at 9060 square feet. This amount of growing should produce upwards of 57.960 pounds of produce annually.

This amount of produce should supply the kitchen with all produce need for meals at the school and allow students and staff to supplement 3-4 meals per week at home.

This production will be possible using a biointensive gardening method. This method involves growing plants closely together in 18 inches of a manure blend, creating a mini-climate. Up to nine crops can be harvested per year. The biointensive method yields 2-5 times more than modern commercial methods and requires about 1/5 of water consumption to typical growing methods. Estimated savings for the school could be as much as \$400 per 100 square feet of growing space annually, in this case up to \$36,000 per year savings to the food services budget.

The value of a growing immersion program is a great opportunity and allows the children a multitude of lessons. People of all ages can enjoy gardening, but for children in particular gardening, harvesting and cooking is educational and develops new skills including:

- Responsibility
- Understanding
- Self-confidence
- Love of nature
- Reasoning and discovery
- Physical activity
- Cooperation
- Creativity
- Nutrition







These two hallways show the lack of evolution of school circulation patterns throughout the past century. The second image may show brighter colors, clerestory windows but it is largely the same and built upon outdated principals.







The traditional model or school design is the single-loaded corridor. Spaces are separated and divided by a long narrow hallway. There is a limited interaction and collaboration space. This organization was modelled after Ford's assembly line. The second model has modified from the traditional and has organized the spaces around a collaborative space. Increased interaction among peers and those of other ages has been found to have a profound impact on the learning environment.



This final model represents the model used for this solution. By organizing the learning spaces on a radius around the collaborative area circulation is decreased and there is more overlap amongst classrooms. By placing all the learning spaces with southern exposure, daylighting has been maximized in the spaces utilized most.





SITE PLAN

The site sits adjacent to the Jerry Gable Boys and Girls club which is currently undergoing a renovation project financed by local businesses.

On the south lawn of the school yard are community gardens. Initially it was a consideration to use these plots as a way to fund raise through crowdfunding, selling these plots would have gone against the inclusive community nature of this project. Rather the plots would be distributed on a need-based process to citizens of the Jordan neighborhood. Bring the public to the site is a way to boost security and the overall success of a building that sole purpose is to serve the community in which it resides.





STAFF LOUNGE CULINARY MOTHERS ROOM LAB C MUSIC ROOM OPEN TO BELOW OFFICE ्य KITCHEN ELEV w.ć. COCLER OPEN TO BELOW BOYS LIBRARY GIRLS JANTL FREEZER BREAK BREAK OPEN TO BELOW DN -CAFE ROOFTOP WET LAB DN

SECOND FLOOR PLAN



BASEMENT FLOOR PLAN

















During dark periods, the glass ensures higher light transmission in the greenhouse. The glass has a very fine surface structure, so dirt won't stick to it. Furthermore, the glass is hydrophilic: condensation doesn't form droplets, but a thin layer that seeps down into the rainwater collection. The biggest innovation of SmartGlass is the adaptive haze property. A patented adaptation of the base glass creates a diffuse light distribution to increase light during darker periods, namely in fall and winter. The furniture inside the schools we build today are often cheap, hard surfaces that aren't comfortable and do nothing to increase the students experience. We spend millions on schools, and allow little budget for quality furnishings. There are great products on the market for comfortable and flexible learning. Work tables in this project selected can be moved and arranged in many different ways to enhance the lesson plan. Seating surfaces are soft and moveable. Children thrive in collaborative and flexible spaces.





This school partners with local food giant of the twins cities area to build a school surrounding food production, harvesting and preparation. As a byproduct of this immersion curriculum the children of this school will benefit from fresh foods that they may not be receiving at home. Just like a CSA program, the students will be able to bring home boxes of produce home to share with their families creating change beyond the school walls.

This model is not need to be specific to the same type of partners and curriculum. By looking at local partners and local needs this idea can be shaped to create change, or simply build better schools, anywhere.



RYAN GRAM ELK RIVER, MN ph. 612.913.6992 e. ryan.gram.16@gmail.com
PREVIOUS STUDIO EXPERIENCE

2ND YEAR

Fall : Joan Vorderbruggen Tea House - Fargo, ND Boat House - Minneapolis, MN

Spring : Phil Stahl Dance School - Moorhead, MN Biomimicry Dwelling - Mobile Structure

3RD YEAR

Fall : Paul Gleye Moorhead Brewery - Moorhead, MN Concordia School of Music - Moorhead, MN Downtown Moorhead Streetscape - Moorhead, MN

Spring : David Crutchfield Fargo Foundry - Fargo, ND School of Music - Chicago, IL

4TH YEAR

Fall: Don Faulkner High Rise Project - San Francisco, CA

Spring: Don Faulkner Mavin Windows Competition - Fargo, Nd Uptown Master Plan - Minneapolis, MN