ENTANGLED BANK
A Sustainable City Block for Dallas | Prototype for the World
The focus of the project and this book is to create a prototype for how we develop communities. Our goal is to research and discover the individual components that are necessary to devise a neighborhood framework in order to cultivate environments that are based on mutual reliance, healing and revitalization. The intent is not to recreate the same project in multiple cities around the world but instead understand elements necessary to create a successful sustainable community that doesn’t just respond to the environment, but improves the life of every human that it engages. At the same time we must be careful not to lose what makes a place special as it relates to the cultural, historical and physical context of each site. In order to do this, we must implement a consistent framework while responding and balancing the distinct social issues, site constraints and regional concerns of an individual place.

The organizing principles of the framework perform on a macro level beginning on a micro level, with the individual. Environmental stewardship may start as an individual act or choice but it has a far greater impact on our society as a whole. Perhaps the greatest value of sustainable living is indeed the positive impact it has on people and on the way we live and live together. The world has never before been so closely tied together, highlighting that the activities of one country (both positive and negative) have an almost immediate rippling effect around the globe.

The fact that we participate in a global society should inspire us to think more holistically and more creatively; to incorporate the blended ideas of sustainability as a way of living that, if addressed correctly, will indeed have a profound impact on the stability of the global community. Armed with this common understanding, we can begin to heal our planet for ourselves and our future generations. It is with this optimism that we embraced the design for the Entangled Bank, a project that highlights that it’s not so much about the individual part as it is about how all the parts support one another for common and shared goals. We can be better by being influenced by those around us. We can grow by being open-minded and more accepting of our collected fate. We must take personal responsibility and realize that our individual actions often have an effect on others. It is good for us to change some habits. The Entangled Bank reflects a faith in our future and celebrates the idea that we are much greater when we work as a whole than we ever could be as separated and individual parts.
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Darwin’s Entangled Bank is a complex network made of simple elements. Each piece, whether it is the bird, the plant, the worm or the soil, personally contributes to the growth and ultimate survival of the whole. They are all different from one another but each is very dependent on the other. Without them the bank would unravel and fail.

A very personal cycle of life persists within the network. Starting with conception, continuing with growth, and ultimately flourishing, the bank itself is meant to sustain and offer every opportunity for its constituents to succeed. This same notion can be related to the natural environment as well as the social landscape of Dallas and also our site.

What if we not only sought to teach and educate about the importance of sustainable living, out of respect for the environment, but we actually sustained and rehabilitated those among us who were struggling? What if we welcomed them back within the comfort of the Entangled Bank and as they grew and flourished we watched them begin to contribute to the bank themselves? It is our belief that true sustainability relates not only to the environment but also has key economic and social impacts.

This project develops a network that creates opportunity and supports those that flourish. It also rehabilitates those that have withered. This project will explore numerous ways of implementing new and innovative sustainable strategies that appreciate and strive to improve the natural environment. Perhaps even greater, this project will seek to sustain what might be our richest and most influential resource—the human. All too often we focus on changing the effect without reviewing the cause.

This mixed use development will use the metaphor of the Entangled Bank to fertilize an old parking lot. It will take dormant seeds of retail, commercial, residential and social equality and give them water in the form of education and sunlight. This water, represented in the sustainable movement of nature and man, encourage the bank to flourish and grow beyond its original footprint. In doing so, we will transform a city block, then a city, then a country, then a world into a system that can sustain itself and also rehabilitate and support the people that are a part of that network.
Rising up from a transformative base is a series of horizontal green spaces and vertical farms. They create a vegetative framework that physically holds the bank together and also provides sustenance for the bank by creating spaces for social interaction, production of food and collection of resources. Similar to how seeds from grain are dispersed by wind across the Texas plain, the residential units are embedded within this framework creating the community of living for the development.
MEANDERING PATH

By definition a meandering path is to proceed by or take a winding or indirect course. Though the course isn’t direct, there are lessons learned even in moments when one’s way is lost. In our project it represents the human aspects of the Entangled Bank.

Where, as in nature, the bank is made of soil, plants, and organisms, the meandering path relies on a network of education, retail, dining, entertainment and wellness activities to sustain and rehabilitate the human spirit. By providing venues where those in need can be taught and transformed it becomes the link, both figuratively and physically, between the occupants of the homeless assistance shelter adjacent to the site and the community of Dallas. A slow food restaurant celebrates this shift, from transience to permanence, where the grid of downtown Dallas and grid of the shelter overlap.

below: concept sketches
right: plan of the “meandering path”
left: view within the “meandering path”
The focus of our research was discovering the components necessary to create and enhance "community". This investigation was at the scale of our specific site as well as the entire urban fabric. It was important to understand the existing conditions that the framework would need to grow within, thus we explored the cultural, commercial, residential and park systems native to Dallas.
ENTANGLED BANK
The overall building form is organic in shape and promotes future growth and development of the bank. The tower component becomes an icon of this growth. Reaching upward, it also includes vertical wind turbines and a series of sky pastures that support a communal resource and food need. The form itself is essential to the development. It becomes the natural screen that protects the farms and public parks from the scorching sun of Dallas.

Ultimately, the bank serves as a communal meeting space where an exchange of ideas, of apprenticeship, and of produce takes place. The tower beacons the community of Dallas, as a whole, to participate in the evolution of the bank - transforming with the seasons, sharing resources and then dispersing, leaving the bank to sustain itself while conveying ideas of a sustainable future to a new place.

far left: conceptual facade sketch
left: concept diagrams | sketches
PHASING

The first phase of the Entangled Bank will include all of the necessary components to sustain a successful network that extends seven levels from grade. It will consist of a framework to which the bank can develop organically in the future with additional phases much like the natural cycle of life. The proposal for phase two would grow the bank an additional twenty levels creating "natural protection" for the vertical farm from the scorching afternoon sun.
left: birdseye view
right: night shot of approach
1. Vertical Farm
2. Solar Thermal Copper Tubing
3. Photovoltaic Panels
4. Personal Hanging Vegetation (Sunshade)
5. Elevated Park
6. Grain Field
8. Live/Work Unit
9. Water-Runoff - Retention
10. Sustainable Fitness & Yoga
11. Daycare
12. Sky Pasture
13. Residential Unit
14. Environmental Learning Lab
15. Parking
16. Organic Culinary Institute
17. Meandering Path
18. “The Root” Transit Connection
19. Slow Food Restaurant
20. Organic Grocery
21. Retail
22. Agricultural + Farming Institute
23. Environmental Learning Lab
24. Wind Turbine
The Entangled Bank recognizes the importance of education in the community. Serving as the keystone to this sustainable development, it encourages the sharing of ideas and expertise, offers opportunity for personal growth, and promotes a communal approach to sustainability that allows its message to spread beyond the development boundaries.
Daycare is the provision of daytime training, supervision, recreation, and often medical services for children of preschool age, the disabled, or the elderly.

Daycare facilities are located on the second floor with daily access to the elevated park. The development of a child’s mind and introduction to social interaction occurs in an environment that illustrates the balance of a certain process or state in any system.
As sustainable food becomes more and more popular, cooking schools are beginning to offer classes, or even courses, that focus on sustainable food.

The Organic Culinary Institute, located adjacent to the Organic Farm Institute and Slow Food restaurant, will provide the understanding of Organic food through valuable hands on training. Comprehensive knowledge of cooking and baking methods, leadership skills, and understanding of the business of food that will serve the community well will be covered in this program.
Organic farming is a form of agriculture that relies on crop rotation, green manure, compost, biological pest control, and mechanical cultivation to maintain soil productivity and control pests.

The Organic Farming Institute is located on the first floor along the meandering path. The programs provided will be focused on soil types, systemic management of plant pests, organic livestock and poultry management, and breeding and genetics.
A national dietary survey of adults demonstrated that a significant percentage of the population surveyed had inadequate dietary intake of a range of vitamins and minerals. An assessment of the individual’s biochemical and nutritional status is critical to understanding the underlying deficiencies and causes of ill health.

Subjects to be researched and shared with the community include: what is needed to achieve the recommended daily allowances of the necessary nutrients, and the affects of poor soil quality, toxins, pollution, stress, the over-processing and cooking of foods.
WELLNESS

Yoga
Spa
Fitness

Wellness is a key component to the bank. Essential to rehabilitating and sustaining the human resource, it is sporadically placed throughout the podium of the development to offer a respite from the urban fabric of Dallas. Revitalizing occupants and visitors alike it fertilizes our most influential resource, the human.

Yoga

Yoga refers to traditional physical and mental disciplines associated with meditative practices. It is a practice and process of self-discovery, personal growth and life transformation.

Located on the roof of the Seventh floor, the interaction of physical exertion and balance within is provided while overlooking the Grain Field.
Spa

The destination spa is dedicated to health and renewal through an all-inclusive program that includes spa services, physical fitness, healthy cuisine, and educational programs. The Entangled Bank provides culinary, nutritional, medical and environmental learning programs. The culmination of these events are concluded during the experience of physical relaxation at the destination spa, located on the ground floor.

right: sketches of destination spa
below: enlarged plan of spa
Sustainability refers to maintaining balance in ecological, social and economic systems by regenerating resources. Sustainable fitness means maintaining our health through the rejuvenating benefits of exercise to create a lifetime of enjoyable activity.

The physical exertion, required along the vertical climb between the urbanized pedestrian walkway and the surreal fitness center above, is part of an individual’s journey and personal transformation.
The retail, dining and entertainment within this block will offer benefits to those that live within the Entangled Bank as well as those who are only there temporarily. It will allow people to buy and sell, serve and be served, and to perform and be a spectator, thus further strengthening the local economy and engaging Dallas holistically.

**Slow Food**

The Slow Food movement was founded by Carlo Petrini in Italy to combat fast food. It claims to preserve the cultural cuisine and the associated food plants and seeds, domestic animals, and farming within an eco-region.

Located at an entrance to the meandering path, the Slow Food restaurant is based on the freshness and wholesomeness of ingredients; the care and craft with which they are handled; and the quality of life of consumers, producers and their neighbors.
Organic Grocery Store

An Organic Grocery store provides food and amenities that are grown with the conventional non-organic pesticides, insecticides and herbicides.

The placement of a local Organic Grocery store with quaint neighborhood qualities sells both the food grown on this site as well as local organic farmers throughout the Dallas city area.
ENTANGLED BANK

The market is any one of a variety of different systems, institutions, procedures, social relations and infrastructures whereby persons trade, and goods and services are exchanged, forming part of the economy.

Located in the center of the meandering path, “The Market” doors rise in the morning for the trading of goods and services and at night the doors remain hidden while the community gathers for musical, theatrical and educational entertainment.

left: view from within the meandering path
right: sketches from within meandering path
below: enlarged plan of the market
The traditional public space, often viewed as a horizontal plane, is challenged by a three dimensional experience that displays the blossoming of color in the spring and the vibrant degradation of color in the fall. All of this serves to reinforce the constant growth and decay of the living Entangled Bank. It is correct to refer to the public space provided as ‘green’ by recognition but it is through the theory of constant germination we conclude that the public space provided is an ever changing color.
Green roofs, also called living or planted roofs, are systems of living plants and vegetation installed on the roof of an existing or new structure.

An ‘Intensive Green Roof System’ is the base structure of the Elevated Park providing the environment appropriate for the germination, growth and sustainability of nature.

left: rendering of elevated park system
Sky Gardens

The solid mass of undulating units is pierced by the natural light and air that flows through the carved green space in the urban facade. The ‘Gardens,’ perched on the edge of the man-made cliffs, provide a common area for residents to gather as well as support horizontal and vertical vegetation. This vegetation will not only offer sustenance to the microclimate of each residential level but will also be an indicator of season within each neighborhood.
FOOD PRODUCTION

Sky Pasture (6, 10, 14, 18, 22, 26)
Vertical Farm
Grain Field

Our goal for this project was a block that could sustain itself and its occupants. In order to achieve this on a 2.5 acre site it was necessary to rethink how we plant, grow, harvest, and graze. An intricate frame work of tiered horizontal and vertical growing and grazing surfaces were created to maximize food production.

Sky Pasture (6, 10, 14, 18, 22, 26)

Pasture is land with low-growing vegetation cover used for grazing of livestock as part of a farm, ranching and other unenclosed pastoral systems.

Many traditional pastoral practices have had to adapt to the changing circumstance of the modern world and this site proves the ability of providing a pasture in an uptown surrounding. The Sky Pasture is located on the fourth floor roof and on floors 10, 14, 18, 22, and 26 of the phase 2 tower.

left: view of sky pasture, vertical farm, and grain field
right: composite sketches of sky pasture
Vertical farming is integrated to conduct large-scale agriculture in urban high-rises. Using recycled resources and greenhouse methods such as hydroponics, these buildings would produce fruit, vegetables, edible mushrooms and algae year-round.

A vertical farm is provided at the base of the phase 2 tower, whose height is only restricted by the tower it supports. Each resident has access to the vertical landscape to grow the produce for their consumption and selling at the local market below.

left: vertical farm
Grain Field

Green roofs, also called living or planted roofs, are systems of living plants and vegetation installed on the roof of an existing or new structure.

An ‘Intensive Green Roof System’ is provided on the roof of the fourth floor to provide seasonal vegetation for the feeding of the animal life on site, while acting as an open classroom for the environmental learning lab.
Located on the outer shell of the Entangled Bank, the two story space overlooks the stairs that provide direct access to the public. These hybrids allow artists, professionals, entrepreneurs, and others to own a space that’s well-suited to serve both home and work needs.
A blend of multi-family unit types is provided to address the different life circumstances of the residents. Differing in footprint and degrees of compartmentalization, efficiency and affordable units co-exist seamlessly with market rate townhomes. The diversity afforded by using the efficiency unit as a building block gives the development the opportunity to adapt to its environment. The organic nature of the whole showcases the concept of the Entangled Bank, whose units are dependent on one another to create a successful community.

left: view from unit to downtown Dallas
below: diagram of unit types
Unit A

**Single Resident Occupancy**
- Square Footage – 350sf
- Percentage Daylight – 100%
- Anticipated Average Market Sales Price – Govt. Finance
- Quantity of Unit Type in Project – 20
- W supplied by PV – 754W
- Personal Hanging Vegetation (sunshade) – 32 sqft

**Affordable Studio**
- Square Footage – 300sf
- Percentage Daylight – 100%
- Anticipated Average Market Sales Price – $110,000
- Quantity of Unit Type in Project – 10
- W supplied by PV – 754W
- Personal Hanging Vegetation (sunshade) – 32 sqft

1. Solar Thermal Copper Tubing
2. Photovoltaic Panel System
3. Personal Hanging Vegetation (Sunshade)
4. Light Shelf
Unit B

Affordable 1 Bedroom
Square Footage – 630sf
Percentage Daylight – 100%
Anticipated Average Market Sales Price – $199,000
Quantity of Unit Type in Project – 90
W supplied by PV – 754W
Personal Hanging Vegetation (sunshade) – 64 sqft

Market Rate 1 Bedroom/1bath
Square Footage – 670sf
Percentage Daylight – 100%
Anticipated Average Market Sales Price – $229,000
Quantity of Unit Type in Project – 70
W supplied by PV – 754W
Personal Hanging Vegetation (sunshade) – 64 sqft

1. Solar Thermal Copper Tubing
2. Photovoltaic Panel System
3. Personal Hanging Vegetation (Sunshade)
4. Light Shelf

right: rendered diagram of unit B
below: diagram of unit type B
Unit C

Affordable 2 Bedroom
Square Footage – 760sf
Percentage Daylight – 100%
Anticipated Average Market Sales Price – $209,000
Quantity of Unit Type in Project – 20
W supplied by PV – 754W
Personal Hanging Vegetation (sunshade) – 64 sqft

1. Solar Thermal Copper Tubing
2. Photovoltaic Panel System
3. Personal Hanging Vegetation (Sunshade)
4. Light Shelf
1 Bedroom/1 Bath Townhome
Square Footage – 860sf
Percentage Daylight – 100%
Anticipated Average Market Sales Price – $215,000
Quantity of Unit Type in Project – 70
W supplied by PV – 1508W
Personal Hanging Vegetation (sunshade) – 64 sqft

Live/Work (Connected)
Square Footage – 800sf
Percentage Daylight – 100%
Anticipated Average Market Sales Price – $210,000
Quantity of Unit Type in Project – 50
W supplied by PV – 1508W
Personal Hanging Vegetation (sunshade) – 64 sqft

1. Solar Thermal Copper Tubing
2. Photovoltaic Panel System
3. Personal Hanging Vegetation (Sunshade)
4. Light Shelf
Unit E

**Market Rate 2 Bedroom/2 Bath**
- Square Footage – 1,120 sf
- Percentage Daylight – 100%
- Anticipated Average Market Sales Price – $275,000
- Quantity of Unit Type in Project – 35
- W supplied by PV – 1,508 W
- Personal Hanging Vegetation (sunshade) – 80 sq ft

**Affordable 3 Bedroom**
- Square Footage – 1,120 sf
- Percentage Daylight – 100%
- Anticipated Average Market Sales Price – $270,000
- Quantity of Unit Type in Project – 80
- W supplied by PV – 1,508 W
- Personal Hanging Vegetation (sunshade) – 80 sq ft

1. Solar Thermal Copper Tubing
2. Photovoltaic Panel System
3. Personal Hanging Vegetation (Sunshade)
4. Light Shelf

**right:** rendered diagram of unit E  
**below:** diagram of unit type E
Unit F

2 Bedroom/2 Bath Townhome
Square Footage – 1500sf
Percentage Daylight – 100%
Anticipated Average Market Sales Price – $389,000
Quantity of Unit Type in Project – 30
W supplied by PV – 1508W
Personal Hanging Vegetation (sunshade) – 64 sqft

1. Solar Thermal Copper Tubing
2. Photovoltaic Panel System
3. Personal Hanging Vegetation (Sunshade)
4. Light Shelf

right: rendered diagram of unit F
below: diagram of unit type F
RESOURCES CAPTURE

Water

Storm water runoff is rain or snow melt that flows off the land from streets, roof tops and lawns.

Glass ponds, viewed from below are situated on the elevated park to capture the water runoff that is not captured by the surrounding vegetation.

left: birdseye rendering
right: water recovery pools

Solar

Wind

Today, the mechanical advancement in technology is focusing on the delicate balance between the needs of urbanized supply and demand and its effects on the fragile global environment. The 'Entangled' bank introduces the use of the most modern technology in a way that pushes the results beyond current expectations.
A photovoltaic panel uses solar cells to convert light from the sun directly into electricity. In Dallas a 10 kilowatt PV system will produce approximately 13,500 kilowatt-hours of energy in a year. With a standard annual electrical consumption of approximately 40,000 kilowatt-hours, a 30kW system will cover the entire electrical usage of one unit.

Solar panels are mounted to the façade of each residential unit to provide up to 100% of the power required for each unit.

left: rendering of residential facades
below: sketches of investigations
Wind

The Greenpower Utility System (GUS™) line of vertical axis wind turbines requires a minimum of 4mph and produces up to 50% more electricity on an annual basis versus conventional turbines with the same swept area.

Dallas's median wind speed is approximately 10.6mph making this choice viable. The electricity created by this system will be used for the core needs such as common lighting and retail tenant needs.

The wind turbines are the source for the running of the required parking level ventilation system. Turbines are placed at the 'wind' side of the fans with the concept that the electricity required to create the movement of air will be provided by the fan in which it moves.
EVOLUTION OF THE BANK SUSTAINABLE DISTRICT “THE ROOT” FUTURE GROWTH
ENTANGLED BANK

EVOLUTION OF THE BANK

The intention of this development is to spread far beyond our single city block. However, the fact that it spreads is not nearly as important as the way in which it spreads. Many think that the more we build the more we impact. The notion of the Entangled Bank however, is more about experience and the transformation of thought and creative thinking than it is about painting the town green.

left: view towards business center
SUSTAINABLE DISTRICT

Green Seam
Natural Nodes
Meandering Path

Linking the Trinity River to the fabric of Dallas, the Sustainable District promotes accessibility to goods, services, people, places and information. The development of the sustainable district requires participation, cooperation, and shared visions; it will integrate the diversity of social, economic and environmental features, resulting in an experience that considers the future generations and provides a framework from which to grow.

Green Seam

The intention of the Green Seam is to connect the “neighborhood” to the “city.” Interaction occurs along a single spine that branches. Extending towards the neighborhoods to the south and the city of Dallas to the north, the concept of Green Seam encourages participation and developing an expanding community.

left: birdseye view of the “Green Seam” superimposed on the city of Dallas
The intention of the Natural Nodes is sporadic. Spreading the message of sustainability beyond the confines of our block into the spaces in between. The nodes will serve as constant reminders of Dallas’ commitment to building a sustainable future for residents and visitors alike.

left: birdseye view of the "Natural Nodes" superimposed on the city of Dallas
Meandering Path

The intention of the Meandering Path is to offer choices. Consisting of swaths of green, the indirect course is less about the destination and more about the journey. Travel along the path enlightens and teaches of Dallas’ promise of building a sustainable center.

left: birdseye view of the “Meandering Path” superimposed on the city of Dallas
"The Root" is the pedestrian connection that links the Entangled Bank to a future transit stop. Similar to how a root branches out below the earth to form the foundation for a tree, this element forms that link between our project and the city of Dallas. It erodes the street that commonly draws a socioeconomic line between people and exposes a vegetated walk that literally reaches out to the urban fabric of Dallas. It encourages people to come to the site to live, work and play as well as spreading the message of sustainability beyond the confines of our block.
Additional studies have been explored with the Entangled Bank continuing its periods of growth and erosion extending to the east. These future phases much like the initial phase will maintain a network of elements that work together and are linked by a framework of vegetative surfaces and community support.

*Future Growth*

left: sections of organic grocery store
below: enlarged plan of organic grocery store
THREE ARTICLES

SOCIAL SUSTAINABILITY
PUBLIC PROTOTYPE
CONNECTIVE CATALYST
It is common in architecture today to design sustainably. It has almost become fashionable to collect your LEED checkpoints and boast your building’s seal and level of certification. But for every point garnered by inclusion of a composting toilet or specifying low VOC paint, how many lives are truly being changed? Obviously something is better than nothing so the fact that people are beginning to respect the environment and seeking to preserve its resources is a welcomed advance. Unfortunately it’s becoming clear, that for many, that’s all there is. True sustainability is one that focuses not only on the environment but also considers the economic and social implications of a project.

All too often we focus on changing the effect without reviewing the cause. What if we not only sought to teach and educate about the importance of living sustainably out of respect for the environment but we actually sustained and rehabilitated those among us who are struggling? What if we welcomed them back within the comfort of our “human network,” and as they grew and flourished we watched them begin to contribute to society themselves?

Little’s concept for the city of Dallas’s mixed-use development is based on Darwin’s “Entangled Bank,” a complex network made of simple elements. It is our belief that true sustainability relates not only to the environment but also has key economic and social impacts. These impacts form the basis of the different components of this sustainable development.

The project creates opportunity by developing a community that supports those that flourish… but also rehabilitates those that have withered. It explores numerous ways of implementing new and innovative sustainable strategies that appreciate and strive to improve the natural environment. But perhaps even greater, by becoming a transformative space between Dallas’s homeless assistance shelter and the urban fabric of Dallas’s business center, this project will sustain what might be our richest and most influential resource…the human.

At the base of the building is the “meandering path.” It represents the human journey within the Entangled Bank. Though the course isn’t direct, there are lessons learned even in moments when one’s way is lost. Where as in nature the bank is made of soil, plants and organisms, the meandering path relies on a network of education, retail, dining, entertainment and wellness activities to sustain and rehabilitate the human spirit. By providing venues where those in need can be taught and transformed, it becomes the link both figuratively and physically between the occupants of the homeless assistance shelter adjacent to the site and the community of Dallas. A slow food restaurant celebrates this shift from transience to permanence where the grid of downtown Dallas and the shelter grid overlap.

Rising up from this transformative base is a series of horizontal green spaces and vertical farms. They create a vegetative framework that physically holds the bank together and also provides sustenance for the bank by creating spaces for social interaction, as well as production of food and collection of resources. Similar to how seeds from grain are dispersed by wind across the Texas plain, the residential units are embedded within this framework creating the community of living for the development. Each unit is provided with the precise amount of PV panels required to accommodate its energy needs eliminating their need for grid based power.

The overall building form is organic in shape and promotes future growth and development of the bank. The tower component becomes an icon of this growth reaching upward, and also includes vertical wind turbines and a series of sky pastures that support a communal resource and food need. The form itself is essential to the development as it becomes the natural screen that protects the farms and public parks from scorching in the tough afternoon sun of Dallas.

Ultimately, the bank serves as a communal meeting space where an exchange of ideas, of apprenticeship, and of produce… takes place. The tower beacons the community that is Dallas as a whole, to participate in the evolution of the bank - transforming with the seasons, sharing resources and then dispersing, leaving the bank to sustain itself while conveying ideas of a sustainable future to a new place.
The challenge that was presented when designing the Entangled Bank was the creation of a city block that would sustain itself economically, strengthen the current social networks and provide a repositioning of an urban area struggling to find its own identity. The Entangled Bank is an example of how this can be accomplished to meet the contextual demands of Downtown Dallas and at the same time be adapted to succeed in other urban sites that present their own contextual challenges. And in doing so being the prototype of sustainable success.

The foundation of this design is Darwin’s description of “The Entangled Bank” which states that within the cycle of life there are a multitude of individual factors, entities that cannot survive if the intended contributions of others do not come to fruition. Similarly, the development of the Dallas block is composed of a multifaceted arrangement of social, economic and environmental entities, referred to as “the triple line approach”\(^1\), working as one to achieve the common goals of progression and survival. Each of these approaches, as demonstrated below, are viewed with equal importance and set the standard from which the community expectations will be extended beyond the current standard.

The vast diversity of individuals that create a community must interact to portray a sense of belonging that exhibits togetherness and bonding in a common area\(^2\). Gathering areas are located throughout the Entangled Bank, one of which is the sky-pasture. Located on every fourth floor of the residential tower, a common ‘pasture/garden’ is where a resident can harvest the vegetables that have grown in the shared ‘vertical garden’, entertain their children with the local live stock and/or simply relax in the presence of their neighbors constructing the ‘glue’ that creates a sustainable community.

The purchase of power for our everyday demands has a cost. A cost viewed as not only a monetary burden but also the dependency on others. One innovation that is provided in the Entangled Bank that alleviates this dependency is the use of local wind. Harnessing the wind as a source of power is achieved by converting circular motion to reciprocal movement and in doing so converting the mechanical energy of motion into the electrical energy needed. The standard indoor parking level requires constant ventilation (the movement of air) to remove auto exhaust contaminants. Wind turbines are placed at the supply grills and uses the movement of the air to create the power required to activate the fans. The result is the cycle of both input and output, therefore sustaining itself indefinitely.

Photovoltaic panels, solar thermal hot water heaters, and efficient HVAC units are ways in which renewable energy is currently being produced. Each of these possess qualities that assists in the need for ‘free’ power while balancing the use of the fragile environment. These forms are accepted as individual sources, but as separate entities, they do not meet their potential. The Entangled Bank combines these components into a single system through the use of photovoltaic panels, solar thermal tubing and the Micro-CHP unit\(^3\). Unlike the traditional central heating boilers with the production of electricity being its primary function and the heat produced as a by-product, the Micro-CHP unit’s driving force is the heat demand of warming the home and the creation of electricity as its by-product. The implementation of hot water by the solar thermal tubing and electricity from the photovoltaic panels, both located on the façade of each unit, allow the micro-CHP unit to be powered by the photovoltaic panels, increase the by-product of electricity through the addition of Solar Thermal hot water, and heat the home as its defined roll. Through the concept of each entity relying on another, the efficiency is increased dramatically and the original goal of protecting the surrounding environment is accomplished.

The Entangled Bank exhibits economic independence, cohesive community strength and environmental engagement, boasting its identity as a structure, a home, and destination that can be modeled as the urban community of the future. All aspects of this community contribute to the growth and ultimate survival of the other. Our response to the challenge that Dallas has presented is an example of how the “triple line approach” sets the new standard to which future development will be compared. The Entangled Bank will be viewed as the prototype of sustainable success.

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\(^1\) Developed during the 1992 United Nations Earth Summit in Rio de Janeiro to define the term sustainability

\(^2\) Home Office Building a safe, just and tolerant society, Community Cohesion; A report of the independent Review Team

\(^3\) Micro-CHP; Microgeneration Combined Heat & Power system
Engaging the Context, Catalyst Through Connectivity

Where to begin...

To arrive at the solution to any given problem or equation, a framework or set of guidelines need to be in place. Boundaries need to exist to give context. When presented with the confines of a city block in Dallas, Texas, devoid of the built environment and with little social engagement, the process of solving for its connectivity could begin.

With boundaries firmly established, the surrounding context is then explored through diagram and examination of systems, of relationships, of aspirations. There are physical, social, and economic interrelationships at play. Striking the balance between these is what will deliver the most appropriate resolution in the form of a successful concept. The physical context is just one facet of the greater network essential to any sustainable environment.

Starting with barren ground, a parking lot, and looking to clues from the surrounding constructs in order to generate new life, figure and ground are explored. Sun angles, prevailing winds, percentage of rainfall are all noted. But interconnectivity/sustainability is more than the natural environment, or technological harvesting of those resources. A fully sustainable network in broader context is not only seen in terms of self-reliance, but also on how it successfully connects to the whole. The boundaries allow for internalization, but they also allow for examination of how the development contributes to the larger urban experience.

Applying the language of interconnectivity exhibited by the chosen concept, the Entangled Bank, to the boundaries generates speculation as to how the development could reach out as the next logical step. A shifting of the Main Street city grid to meet the Trinity River grid generates a focal point or nexus in the 1502 Canton St. site. Beginning or ending on Ervay St., the Bank site allows for the creation of a new district center bounded by the highway in a sense, ringed the south side of the loop between the Farmers Market and West End Districts. The scale is both dense, urban, and of the neighborhood, the pedestrian. Vehicular passage into downtown flanks its East side and laterally along its North and South at present, but the goal is to allow the pedestrian traffic and scale to balance this.

The Bank, along with its street level “meandering path” and elevated parks seeks to create safe haven for the community. The buildings form an edge to the streets to realize the framework and density necessary in an urban environment, but these edges are punctured and punctuated by pockets of entry, moments where the human experience becomes the focus. These moments are what the Bank germinates and seeks to disperse into the city. At the base of the vertical garden, where it meets the meandering path on that grid shift, is a carve, “the Root.” This single story carve within the site boundaries allows air and light to filter down to the lower level parking and restaurant “cellar” program components at present, but the possibility exists for this simple gesture to become much more. Speculating that this re-interpretation of the downtown tunnel connector could pass under Canton St. and reach toward a proposed DART transit hub one block to its North at the City Hall, we begin to see how the Bank could be a catalyst through connectivity, dispersing its message of sustainability and interconnectivity to the city at large.

Aside from the physical connection and practicality of providing a passage from a strong residential presence to mass transit, a sustainable strategy in itself, the carve or “Root” figuratively calls for attention to the idea of connection and positions the surrounding context as a host for this connectivity. Coloring the Root with gardens and paths allows for the passage to be of a human scale not present in the street connectors, and begins to draw on the current and planned public parks of Dallas as part of this network. One might imagine the slower pace, the opportunity to appreciate a more eco-connectivity at the threshold of a future urban Sustainable District.

Similarly, the possibility exists to make connections laterally. One might speculate that adjoining parcel, 1701 Cadiz, might be developed in like fashion and a connector/Root formed that eventually would reach the Farmers Market creating a true pedestrian artery allowing connectivity between neighborhoods by garden path.

The strength of the Entangled Bank is that is presupposes adaptation, transience, even migration. The Bank seems to embrace the complexity of the task of rehabilitating dormant parts of the city fabric and lends itself to becoming a framework upon which we might build. Whether by extending its pathways to meet city parks or creating intimacy and diversity in scale to address the neighborhood as well as the urban condition, the Bank is capable and agile. As the iconic tower beacons attention to its base and the city dwellers travel to its threshold, the Bank stands as the bridge between signature districts, forming a new sustainable and vibrant sense of place, a destination, in an “opportunity zone.”