Spring 5-8-2010

Dwellevator

Jacob A. Slobodnik
University of Nebraska at Lincoln, Jslobodnik@gmail.com

Follow this and additional works at: http://digitalcommons.unl.edu/archthesis

Part of the Architecture Commons

http://digitalcommons.unl.edu/archthesis/99

This Article is brought to you for free and open access by the Architecture Program at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Theses from the Architecture Program by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.
dwellevator (dwel-uh-vey-ter)
-noun
1. a rehabilitative response to homelessness
2. the rehabilitation of derelict grain elevators

rehabilitate (ree-hu-bil-i-teyt)
-verb
1. to restore to a condition of good health, ability to work, or the like.

It is estimated that there are over 3 million homeless individuals in the United States at any given time. Today's homeless are far different than those of the past. History would have it that many of the past homeless were vagabonds looking to escape the rigid constraints of society, in search of a life with no rules, no restrictions, and most importantly, no responsibilities. The majority of today's homeless are instead there, not by choice, but by circumstance. With the current economic decline, the United States is seeing an increase in homelessness and an increase in public costs associated with the epidemic. In 2008, it was estimated that the United States spent nearly $10.95 billion on indirect costs associated with homelessness including emergency care, crisis services, and incarcerations.

The very things currently considered to be assistance are the very things that sustain the lives of the homeless on the streets. Architects, politicians, educators and everyday citizens are challenged to think as sociologists and go beyond that of prolonging the situation through the distribution of food, clothing and rudimentary shelter and instead focus on the rehabilitation of the individual.

DWELLEVATOR is a graduate design thesis which explores the potential to aid the homeless - more specifically those homeless who are looking to better their lives - through the development of a rehabilitation program. This program, which is driven through architectural means, allows for the development of the individual through an understanding of responsibility and ownership of space.

DWELLEVATOR
by Jacob A Slobodnik
RESEARCH

Homeless in Sugamo - by Jim Fischer
in the news

City makes strides in reducing chronic homeless, report says

Nebraska chosen for project on refugees’ impact

The New York Times

Ricevista Drives Surge in South Dar es Salaam

Omaha World-Herald

Modern ag lacking in soul

EXTREME MAKEOVER: SILO EDITION

A place to call home?

Omaha World-Herald

Buffett buys BNSF
The U.S. Department of Housing and Urban Development defines the condition, homeless, as:

- an individual who lacks a fixed, regular, and adequate nighttime residence; and
- an individual who has a primary nighttime residence that is —
  - a supervised, publicly or privately operated, shelter designed to provide temporary living accommodations (including welfare hotels, congregate shelters, and transitional housing for the mentally ill);
  - an institution that provides a temporary residence for individuals intended to be institutionalized;
  - or
  - a public or private place not designed for, or ordinarily used as, a regular sleeping accommodation for human beings.
“homeless rebecca from detroit. rebecca doesn’t fit. as though she’s not where she’s supposed to be. i see her as i pass. she is almost ghostly. she sways and bends like the only tree on a hill; unprotected. she seems resigned to a losing battle.

she is panhandling as i pass. or she is praying or mourning. but she is not seen i turn the corner and watch her for a moment. she grimaces her mouth as though swallowing some new resignation and moves away from the season’s passing throng, in my direction, but floating by. i seem to snap a trance when i say hello.

she’s been homeless since 1998. she sleeps sometimes in shelters. but says there’s not enough beds for women. the men have many more. she went to the shelter this afternoon to put her name in for a bed this evening. there’s a lottery, and she didn’t get one.

says she has no family and no children. she’s the only one. but she has one girlfriend who got a place from the city finally after years. says she’s trying to stay there with her friend tonight, if she can make up the guest fee. she’s about a third of the way. it’s been cold and she clearly doesn’t want to be on the street tonight.

she was an accountant not so long back. she had a good job. she worked for kgo. but in ’98, they were downsizing her group and she was let go. she thought she’d get another job easy. but she never did. they all wanted someone younger. and now she’s 54, and says it’s too late for her.”
it's an in between day, stalled on the way somewhere. a strange intermission. tomorrow will better judge.

a lady pushes a stroller by as i hardly notice. except for a glimpse of golden locks.

they're at the intersection when i arrive. i glance down and the child in the stroller looks up. i smile. he says "hello" and smiles back. the woman doesn't notice; she continues along. and i go another way.

but they really don't seem off to an evening stroll; as they enter the park, and i peer back as they approach a group of figures barely visible under the darkness of a tree.

the woman pulls something from her jacket which she passes to the others.

i return from another direction and i'm stared down as i approach. there is the lady and a man, neither stranger to the elements. she's black; he's white. there are two older children and one baby in a second stroller. and there is the child i met before. he is 3.

the children are opening colorful bags of candy that the lady brought back. it seems to be dinner. the child hands me his bag.

the two youngest are the couple's children together. the family lives in a shelter and sometimes beneath the stars. they'll be in the shelter tonight. it opens at 9pm.

the child is named "chance."

"like the movie?" i ask. "peter sellers?"

the father smiles. "no. she's 32 and i'm 42 and this here is my last chance at a life."

"it's an in between day, stalled on the way somewhere. a strange intermission. tomorrow will better judge."

a lady pushes a stroller by as i hardly notice. except for a glimpse of golden locks.

they're at the intersection when i arrive. i glance down and the child in the stroller looks up. i smile. he says "hello" and smiles back. the woman doesn't notice; she continues along. and i go another way.

but they really don't seem off to an evening stroll; as they enter the park, and i peer back as they approach a group of figures barely visible under the darkness of a tree.

the woman pulls something from her jacket which she passes to the others.

i return from another direction and i'm stared down as i approach. there is the lady and a man, neither stranger to the elements. she's black; he's white. there are two older children and one baby in a second stroller. and there is the child i met before. he is 3.

the children are opening colorful bags of candy that the lady brought back. it seems to be dinner. the child hands me his bag.

the two youngest are the couple's children together. the family lives in a shelter and sometimes beneath the stars. they'll be in the shelter tonight. it opens at 9pm.

the child is named "chance."

"like the movie?" i ask. "peter sellers?"

the father smiles. "no. she's 32 and i'm 42 and this here is my last chance at a life."
he clings to his blanket like a friend. he stands against the flow of shoppers; they veer left and right and continue.

wind. rain. sun. they've taken him apart. he's hunched. his skin is flaking in large leafs. his voice is gravelly.

but there's a flair that seems buried. he shows where he lives with a wave of his arm. pointing off and about, "the streets."

his name is dennis. he's from indiana. he came to the bay area years back. he got stationed at fort ord near monterey when he was in the army in the early 70s. he never left.

"do you have family here or in indiana?" i ask

"we're all family" he replies."
he's well groomed and tan. meticulous really. everything in its place. he carries a small backpack; looks like he's on a tour. on vacation.

but he's the only one.

and his eyes give him away. they're sad. like tears would be flowing if tears could.

he's just arrived from florida and he just got robbed. so he's waiting to get his next disability check and he'll be in better shape. it's not enough to live; but it's enough to get by on the street.

he's been getting food at shelters; though he'd never sleep in them. he's hoping st. vincent's will let him take a shower.

his name is james. he was in the army for twelve years. he was shot in the leg and that was that. he ended up on disability in a trailer park.

but then he found the girl next door; well, in the next trailer, actually. she made him feel like he'd never felt. she made him want what he'd never wanted. and he married her. he was 34; she was 24. "ten years"

but she died of throat cancer before their life could begin; having never smoked...and "before we could have children."

and he never felt that way again. and he has no family. and barely friends. though he knows folks on the road that maybe he'll see again; maybe he won't.

he just goes from place to place. wherever he wants. he was just looking at the map this afternoon and decided. he'll go to monterey next; and carmel. he loves being by the water.

"do you think you'll ever want to stop somewhere. have you found any place you like?" i ask.

"why would i stop?" he asks. "why would i do that?"
“homeless john from canada sitting next to his broken down wheelchair near the civic center. he has a white and blue blanket covering his legs. though out of sight, they’re clearly small, barely registering below. almost as though his waist is poking out of some pond or hole, and he barely moves, frozen there.

i can only see the corner of his eye as i pass. i return a few moments later. i ask if i can take his picture, but he says “i’d rather not be seen like this” and smiles surprisingly, painfully, then says “i’m sorry.”

i tell him i only want to shoot his face. “you can do that then, but why would you want to take a picture of me?”

“your eyes”, i respond.

john had polio as a child and then meningitis, and the polio recurred later. his legs have gotten worse and worse over the years, especially from neglect more recently, he says they seem to get worse almost daily. he was a teacher once, but that didn’t pay.

he’s been sitting here since yesterday when his motorized wheelchair broke down. a “nice lady cop” came by that day and tried to help him get a manual wheelchair, but she could only find one for $60 a week. he won’t have his benefits check until next week. he thinks she’ll come by again today. he’s waiting.”
In the United States, it is common to find the majority of all homeless in large metropolitan areas. As such, most homeless can be found in heavily populated states such as California, New York, Texas, and Florida. With this large centralization of the homeless comes a large amount of assistance located in those areas. Unfortunately, there are also a large number of homeless in the United States who do not reside in those locations and who do not receive the assistance needed as they would in those areas. Due to the lack of assistance in rural and non-metropolitan areas nation-wide, many homeless have developed a system by which they move about the country in search of help.
The homeless are categorized in three main categories – hobo, tramp, and bum. A bum is a homeless person who does not travel and does not look for work. They spend a majority of their time in one location and live off handouts and whatever they can find on the streets.

A tramp is a homeless person who travels from place to place, but does not look for work. Instead they travel to avoid danger or to escape weather patterns. Like the bums, they survive on handouts and street objects.

Hobos, on the other hand, are the homeless who travel from place to place in search of work and better opportunities. The diagram at left represents the migratory patterns of the homeless from major city to major city in search of work opportunities and assistance. The diagram shows how although the large cities become focal points of living, the areas between points also become inhabited.

Like old times, hobos continue to travel from place to place via the railroad. In order to cope with the challenging nature of travel, hobos have developed a coded system to provide directions, information, and warnings to other hobos.

They have also developed the “Hobo Ethical Code.” The nature of this code shows just how strong the hobo community is. It was created by the Tourist Union #63 during the 1889 National Hobo Convention and continues to be in use today.
The Hobo Ethical Code

1. Decide your own life, don’t let another person run or rule you.
2. When in town, always respect the local law and officials, and try to be a gentleman at all times.
3. Don’t take advantage of someone who is in a vulnerable situation, locals or other hobos.
4. Always try to find work, even if temporary, and always seek out jobs nobody wants. By doing so you not only help a business along, but ensure employment should you return to that town again.
5. When no employment is available, make your own work by using your added talents at crafts.
6. Do not allow yourself to become a stupid drunk and set a bad example for locals treatment of other hobos.
7. When jungling in town, respect handouts, do not wear them out, another hobo will be coming along who will need them as bad, if not worse than you.
8. Always respect nature, do not leave garbage where you are jungling.
9. If in a community jungle, always pitch in and help.
10. Try to stay clean, and boil up wherever possible.
11. When traveling, ride your train respectfully, take no personal chances, cause no problems with the operating crew or host railroad, act like an extra crew member.
12. Do not cause problems in a train yard, another hobo will be coming along who will need passage through that yard.
13. Do not allow other hobos to molest children, expose to authorities all molesters, they are the worst garbage to infest any society.
14. Help all runaway children, and try to induce them to return home.
15. Help your fellow hobos whenever and wherever needed, you may need their help someday.
16. If present at a hobo court and you have testimony, give it, whether for or against the accused, your voice counts!
It’s hard to believe that in the 21st century, people can still live in such squalor. The stench was unbearable but it was obvious that somebody “hits the mattress” there on a regular basis.

-Alan Dean, http://www.flickr.com/photos/antwerpalan
A car is shelter. A car is a place to sleep. A car is a mobile storage unit. There is no other device that will do as much for you, short of ending your homelessness. But a car, on its own, is not enough. If you sleep in your car in a city, you will meet with local law enforcement. There is nothing quite so unpleasant to wake up to as the sound of a baton hitting a window beside your head. Take it from one who knows by experience.

-Mobile Homemaker, Survival Guide to Homelessness
In Nebraska, the majority of all homeless reside in major cities such as Omaha or Lincoln, though a large number also thrive in smaller cities and towns. In fact, 35% of all homeless in Nebraska live in rural and non-metropolitan areas.
ANALYSIS

the hobo - by John T. Davis

a rehabilitative response to homelessness
In order to determine what the needs of the homeless are, one must understand what the homeless do not have. Often, what they are lacking, are things that we take for granted. The following was written by Mike Yankoski, in his book titled Under the Overpass, and are the fundamental questions of the homeless.

Where can I eat?
When you’re hungry you stop worrying about what your food looks like, or what might actually be in it, or even how it tastes. You’re simply trying to fill your aching gut.

Where can I sleep?
1. Don’t sleep in someone else’s spot.
2. Find a place where you can sleep as long as possible.
3. Try to stay out of the rain.
4. Try to stay away from the rats.

How do I stay clean?
It’s amazing how much our definition of clean changed. We transitioned from the (typical) frequent showering habits of respectable college students to, well, something far less. Having no soap or hot water probably helped things along. The longest period I went without a shower was nearly five weeks.

Where can I go to the bathroom?
This most elemental requirement of the human animal often defeated us. What do you do, when you can’t—like I couldn’t several evenings in D.C.—find a rest room? Well, you look for bushes or trees—you look for a corner behind a dumpster.

What happens if I get sick?
You’d think that the constant exhaustion, exposure to the elements, and unsanitary conditions would have made us ill often, but the opposite was true. (When it did happen,) those days were a low point though. All I wanted to do was sleep but security guards, car horns, and the need to panhandle or get to a feeding kitchen prevented that.

He had a hard time talking, but he made the effort anyway. I expressed that I found it remarkable he was willing to work for his food, as most people would rather steal it instead. He smiled and that’s when I asked him if I could take a photo. Just one quick photo was all I needed, and then I asked him to stay as I’d return with something. I came back shortly once more as I promised, but this time with a cheeseburger in my hands. As I watched him put the hamburger away into his pocket’s my eyes drew to the writing on his cap.

“Why does your hat say baby?” — I asked

“Baby is my name. I wrote it on my cap so others could see it too.” — He responded

—Tomasz Wagner, Mananetwork Photography and Design www.mananetwork.net
In order to understand what can be done to help homelessness, one must first understand what has been done. Through such simple solutions as coats, gloves, or sleeping bags, providers have been able temporarily solve immediate problems of homelessness, but as a result, prolong the situation by making it more tolerable.

At a larger scale shelters full of beds, or houses and apartment complexes can often be intimidating to someone who has lived on the streets. The response must do more than temporarily solve climatic circumstances, but it must also not overwhelm. It must become an architectural solution which can accommodate all scales of assistance and integrate a system of progression to eliminate intimidation.
Assistance for the homeless varies in scope and scale from the most basic of gloves and sleeping bags, to the grand shelters of Los Angeles. The first study of precedents looked at the smaller scale. Sleeping Bag Handout was a project funded by the Wal-Mart Foundation in Baltimore, Maryland and comprised of handing out sleeping bags in the winter months to over 800 individuals. That season, hypothermic deaths were reduced by nearly 90%.

ParaSITE is a project by Michael Rakowitz which was designed as a parasitic attachment to existing structures in order to collect heat from exhaust vents.

Huts and Low-Riders were small projects constructed of scrap materials which sheltered the homeless from the elements in Atlanta, Georgia. While this program was formalized by those willing to build these huts, the homeless have been building shelters like these on their own for years. Due to safety issues, however, the government is forced to demolish these structures and tell the homeless to find better living elsewhere.

First Step Housing is literally the first step from minor assistance to assistance which helps the homeless by providing more than shelter. The cubicle hotels, as they are called, were designed to give the homeless a sense of belonging and sense of ownership. They were provided with beds, minimal storage, and in some cases a desk and lamp. Unfortunately, the rigid constraints of the unit left the occupants feeling overly structured and would often stay for only a short while.
On a much larger scale are the Los Angeles Mission and the Union Rescue Mission also located in Los Angeles. These enormous structures provide not only a place to sleep, but also the assistance many need with drug and alcohol rehab, assistance looking for work, a place to eat, and recreational activities. Unfortunately, due to the large size of these facilities, many homeless feel overwhelmed and unsafe.

1811 Eastlake Project was a project in Seattle, Washington which was based solely around the premise that if we simply house the homeless, we can cut indirect costs associated with homelessness by a large sum. In 2005, 1811 Eastlake Project cut the city of Seattle's spending for the homeless by over 50%. The apartments, though minimal at only 325 square feet, were designed to give the homeless a real sense of ownership. Rehabilitation was not a requirement but many who lived here gave up drugs and alcohol in thanks for a place to stay.

While 1811 Eastlake Project was a success on many levels, especially economically, it failed to execute as a full-time recovery option for the homeless. An abrupt transition from dependency on others while living on the streets to caring for one's own self in their own apartment often left the occupant overwhelmed and only led to a relapse back into homelessness.
The challenge then, for architects, is to ask what role do architects have, if any, in aiding the homeless. It seems as though the assistance necessary to truly help the homeless goes far beyond the built environment alone. There must be a system of progression through varying scales of assistance and independence in order to develop one’s self as well as an architectural “place” capable of providing this system.

Beyond the architectural needs, there are also policy needs and policy makers needed to enact such a program. While architects have the means to think in a way which challenges current policy and can propose new policy, this thesis is not about policy and is therefore based around the architectural development of the program.

Can architects think as sociologists and create environments that not only remove the individual from the streets, but also prepares them for a life of independence?
When considering a “place” for the architectural program, one must consider whether to build a new structure vs. renovating an existing. Economically speaking, it is often more cost effective to renovate an existing building than it is to build new. These cost savings come from envelope and structural savings, but are contingent on quality of existing building and amount of demolition and cleanup necessary.

Another economical benefit is the large number of government grants and funding provided to projects renovating existing buildings. Not only does the federal government provide grant funding for restoration and renovation projects, but private foundations do too. According to www.us-government-grants.net, there are over 2,700 private foundations in the United States that give non-profit building renovations grants. Some grants are valued as high as $1.1 billion. The Bill & Melinda Gates Foundation alone have provided $1,182,826,639 in renovations grants.

Another benefit to the renovation of existing structures is the environmental benefit. By reusing existing structures the amount of energy and quantity of materials needed for construction are greatly reduced.

When analyzing possible structures for reuse in order to develop the homeless rehabilitation program, a number of things needed to be considered:

- Are the structures located near transportation lines for the homeless to utilize?
- Are the structures capable of being a part of a larger system comprised of similar designs and layouts?
- Are the structures easily adaptable to housing the homeless?
- Are the structures structurally sound enough to be reused for human inhabitation?
Upon studying a large number of often vacant structures, the concrete grain elevator stood out as an impressive structure capable of housing the homeless rehabilitation system which met all requirements.

Grain elevators have long been admired by architects including Aldo Rossi and Le Corbusier. Rossi once wrote:

To those who travel the great highways of the Midwest, silos appear like cathedrals, and in fact they are cathedrals of our times. They mark the passage of time, the slow evolution of a collective work.

The Great Plains of America are vast, and secret are its villages turned inward on their religious sects and antique languages, as if time had stood still. These people were not seeking America, but were escaping from Europe, and in these first silos there is a memory of, and an obsession with, architecture from different parts of central Europe. Over time the silos rose with ever greater assurance and created the landscape of the New World. In abandoning the problem of form, they rediscovered architecture.
99% of all concrete grain elevators are located along rail lines. As the United States moved west with the rail line, the first structure typically in place after the rail depot was the grain elevator. The proximity to the railroad was necessary for proper distribution and storage of grain. This in-place transportation system, which is a proven method by the hobos, can provide the necessary movement of the homeless in search of work and life changing opportunities.
The standardization of bin diameters also provides for a useful tool for the design of a systematically driven, architectural response. The ability to quickly and efficiently design floor systems, floor plans and circulation layouts allows for the majority of costs to be absorbed in the materials, architectural spaces, and salaries of those employed in such facilities. While grain elevators are designed in all shapes and sizes, the majority of all bin diameters are 25', 35' and 45'.
Grain elevators are designed to withstand extreme structural loads. Reinforced with both horizontal and vertical steel rods, the grain elevator is nearly indestructible. As such, the grain elevator can easily withstand the live and dead loads of human habitation.

Source: THE DESIGN OF WALLS, BINS, AND GRAIN ELEVATORS
Due to the amazing strength of the concrete grain elevator, the average cost of demolition is over $2 million. Coupled with the inability to salvage and reuse the materials, demolition is not a feasible solution to the abandonment of grain elevators. As such, the adaptive reuse of the structures is a valid consideration.

Source: “Tidewater/Girard Point Grain Elevator.” by Matthew Johnson

tidewater grain elevator: built 1914|$1.2 million -- demolished 2007|$2.4 million

| a rehabilitative response to homelessness | the grain elevator | 54 | 55 |
Concrete grain elevators also have the ability to perform very well thermally as a thermal mass. The concrete in grain elevators, typically nine inches thick or more, has the ability to store trapped heat from the day and expend that heat slowly at night keeping the interior air warm and reducing heating loads.

The images on these pages show three mock-ups designed to study the way concrete cylinders trap heat. At this time, the exterior temperature was 67 degrees Fahrenheit. The interior of the cylinders ranged from 70 degrees up to 80 degrees, depending on the size and orientation of the perforation.
Similar to the way in which precedents were studied for homeless assistance, precedents for the adaptive reuse of concrete grain elevators were also studied. Quaker Square was a project which turned the Quaker facility in Akron, Ohio into a 200 room hotel. It was completed in 1975 which teaches us that if one can build in the grain elevators then, surely we can still do so with advancements in modern construction technology.

Calhoun Isle Condominiums consist of 107 condos in Minneapolis, Minnesota. Completed in 1983, the condominiums aren’t only constructed from existing silos, but more silos were built to mimic the appearance of the originals. At a cost of only $9.6 million, these luxury condos cost $20 million less than the Union Rescue Mission in Los Angeles, California.

The Malthouse is a small silo converted into six apartments by a private investor in Richmond, Victoria. Rather than building on the inside of the silos alone, the architect designed large attachments where the primary living areas were housed and only the sleeping areas were located in the silos themselves.
a rehabilitative response to homelessness
In order to better understand the concrete grain elevator, an intense investigation took place into the actual making of a concrete model. Through the act of making, one learns the true integrity and nature of the material itself.

Rigid insulation was used as the mold while crisco vegetable oil was used as the form release. The foam allowed for an easy surface to mill using the CNC technology in the wood shop. In order to test the process, individual rings were poured and various techniques for form release were tried. Without any release, the foam would bond to the concrete and break upon trying to separate the two. When Crisco Vegetable Oil was used, the foam came right out and left a perfect concrete ring.

After finding the proper solution, all 24 layers were milled, glued, and stacked vertically to create the silo form. Concrete was then poured into the remaining gap in the foam to create the mock-up grain elevator.
the act of making
An opening was intentionally placed in the mock-up to study how light reacts with the concrete and how the interior illuminates with minimal light.
Albion, Nebraska is a rural community with a population of only 1800. Based primarily in the agriculture industry, Albion served as the initial case study for this project. By siting the project in Albion, the project intended to inform the public and give them a better understanding of homelessness as an urban AND rural issue. Albion has a need for seasonal migratory workers as well as those looking to make a full time living.

Cities such as Albion are currently facing what socialists call “the brain drain.” This theory focuses on the flight of population and talent from small, primarily Midwestern, towns. The social implications of this flight coincide with all sorts of problems: crime, family breakdown, drug abuse, etc. In the long run, even the very existence of these towns is at stake.

The reconditioned homeless have an opportunity to re-pioneer small town America. In this way, small town communities help to rehabilitate the homeless as the homeless rehabilitate the community.
INITIAL PROPOSAL

1. The challenge

2. The grain elevator

3. The responses

4. The art of making

6. Schematic design

INITIAL PROPOSAL

a rehabilitative response to homelessness
Solutions for the homeless are often publicly funded. As such, the architect must consider the economics behind each decision. In an effort to use only what is necessary, this proposal utilizes only a portion of the elevator for the homeless rehabilitation program. The remainder of the program will remain undeveloped in this thesis, but could provide housing or commercial needs for the city of Albion.
initial proposal

a rehabilitative response to homelessness
In keeping with the progressively independent spaces, the program begins with the most basic, a bed, and progresses through a series of greater independency. The program culminates in an apartment style living with full amenities and an individual rest room.

On the lower levels of the elevator there would be the service portions. This would include the reception, waiting, offices, kitchen, cafeteria, counselling, job training, recreation rooms, and more.

The next level up would be emergency beds. This system includes a high number of beds given on a first come/first serve basis. Typically, these beds are available to any one person for a maximum of 5 days. At that point they must decide to enter the lifestyle improvement “course” or they are asked to leave. The users of the emergency beds share communal shower rooms and there is no personal storage besides clothing.

The next level up is a “cubicle hotel.” This system creates individual spaces, no larger than 6'x8', modeled after Japanese Capsule Hotels. The space has just enough room for a bed, a small desk and chair, a small storage space, and a lamp. They are arranged in a tight pattern that allows the individual some privacy, but not totally, as there are always nearby inhabitants.

Another move up, and the inhabitants are members of the “Rooming House.” This system is similar to a dormitory type living, where individuals are in a room that is shared between two people. They still share a shower room with other guests on that level but each room has a sink, two desks, and two wardrobes. The level has a lobby and living/dining shared spaces.

Another level up, and the inhabitants reach Single Room Occupancy Hotel (SRO). This is similar to the previous but it is based on a more private setting. One person per room. An individual bathroom, modest cooking facilities. At the higher end of this level is similar to a studio apartment, with the necessities for individual living. A first test of living on one’s own. It has been proven that this is the hardest phase because people fall into relapse when they live on their own again, so communal rooms would be an integral portion of these levels.
a rehabilitative response to homelessness
typical emergency bed layout

bed

20 sq. ft./person

a rehabilitative response to homelessness
typical cubicle hotel layout

a rehabilitative response to homelessness
typical rooming house layout

bed
storage
desk
shared vanity

234 sq. ft./2 people
117 sq. ft./person

initial proposal
typical single room occupancy layout

bed
storage
desk
balcony
sofa
private bath

234 sq. ft./person interior
32 sq. ft./person exterior

initial proposal
initial proposal

a rehabilitative response to homelessness
FINAL PROPOSAL
The lifestyles of the homeless are often anything but rigid and constrained. As such, the rigid design of the interior spaces for the first semester, was a solution which seemed to miss the true needs of the homeless.

The second semester included a design of not a series of interior spaces, but instead a series of interior pods. These pods, which can be shipped via the rail system, are designed of lightweight aluminum structure with fiberglass shells. On wheels, the pods can be easily moved by a single individual in a way that suits that individual's desires.

The most basic of all pods, similar to the emergency bed of before, is the bed pod. Designed solely for use as a sleeping space and minimal storage and lighting, the bed pod is the most basic of needs for the homeless. When one takes ownership of a bed pod, they begin to feel a sense of belonging due to that ownership. However, they do not have their own rest room or kitchen, and instead share these facilities with others until they progress through this system to the next level.

The second pod they receive is a bathroom pod. This pod maintains the most basic of bathroom necessities including a toilet, a small vanity, and a built in shower. Because the bathroom pod is designed as not only a bathroom, but also a space creator and is on wheels, vacuum waste removal is in place to remove waste and shower drainage from the pod. The pod simply connects to the wall of the interior shaft of the grain elevator via flexible plumbing to excrete the waste.

Finally, the third pod is the kitchen pod. The pod contains all the necessities for making a meal, including a sink, stove top, and storage for cooking utensils. Though minimal in nature, when the homeless take ownership of a kitchen pod, they now have three units with which they can begin to create and define their space. This ownership and ability to control their surroundings is the final step toward being able to live on their own. From having the bare minimum in a bed to being able to create and own space, the homeless will have evolved into a person capable of sustaining their own life.
a rehabilitative response to homelessness
a rehabilitative response to homelessness
Overhead Lighting
Exhaust Filter
Storage Shelves
Sink
Compact Stove Top

final proposal
In order to further demonstrate that this design was a system and not one stand-alone design, the project was expanded to three sites instead of just one: Albion, Nebraska, Fremont, Nebraska, and Omaha, Nebraska. These cities represent various scales in both overall population as well as homeless population, with Omaha having the most homeless of the three with 1,870.
SCHEME 1

Albion, Nebraska
Population: 1800
Homeless Population: <10
The scheme for Albion, Nebraska involved making minimal moves to maintain the natural integrity of the grain elevator itself and to maintain the statuesque presence in a dominating agricultural landscape. As such, no perforations were made to the exterior facade of this scheme. All lighting enters from above the elevator in a fiber optic cable system with heliostat focused solar lighting to optimize lighting conditions at all times of day.
solid wood floors with center removed for lighting

fiber optics through core terminating at lower level
interior stucco wall

1:2 section model showing interior insulation and stucco finish

9" reinforced concrete wall (exterior)
5/8" vacuum insulation panel
1/8" plywood

1/2" ply wood cement concrete stucco
thermally modified timber (laminated floor)
6" tube steel welded to 1/2" steel plate
1 1/4" x 1 1/4" x 1/2" angle steel ring
1/2" steel plate epoxy anchored

interior stucco wall

12 section model showing interior insulation and stucco finish
fiber-optic light study
final proposal

bed pod layout

bed and bathroom pod layout

bed pod layout

bed, bathroom, and kitchen pod layout
a rehabilitative response to homelessness
SCHEME 2
Fremont, Nebraska
population: 25,224
homeless population: 65

A rehabilitative response to homelessness
The scheme for Fremont, Nebraska was based on a response to the site conditions and orientation. With a large majority of the elevator facing due south, it was important to shade the facade from overheating in the summer sun, but allowing it to heat up in the winter. It was also important, like the Albion version, to maintain the pure integrity of the exterior of the grain elevator. To do that and to allow light into the interior from the south, perforations were made in the facade based on the level of the elevator and the program. The further along in the program one is, the larger the window they have. The facade is then covered with a wooden louver system which is allowed to gray to its natural weathered state to further help the system blend in with the grain elevator. From a great distance, the elevator remains its statuesque self, but closer up, the elevator takes on a unique appearance of depth and surface change.
1:2 section model showing interior insulation and stucco finish and exterior louvers

- Interior stucco wall with window looking out
- Exterior winter facade
- Exterior summer facade

| 120 | dwellator | a rehabilitative response to homelessness | 121 | final proposal |
12 section utilized to show lighting at night exiting the silo and during the day entering.
empty floor plan

bed pod layout

bed and bathroom pod layout

bed, bathroom, and kitchen pod layout
a rehabilitative response to homelessness
SCHEME 3

Omaha, Nebraska
Population: 438,646
Homeless Population: 1,870

A rehabilitative response to homelessness
The Omaha scheme, like the Fremont scheme, became an exterior that responded to site conditions and orientation. Though the grain elevator is large, comprised of over 50 bins, the orientation of the system is running north and south. Due to this orientation, the only silos that receive direct southern exposure in the winter months are those that were cut in order to make room for the interstate. In order to get natural daylight into all spaces, from the south, the elevator was peeled open to reveal the interior and to reach out to capture the southern sun.

To again maintain the integrity of the original elevator, the exterior peeling facade elements are made of timber naturally aged to grey. When driving along the interstate, the exterior of the elevator appears untouched until one drives further south of the elevator and begins to see the peeling elements "opening."
bed pod layout

bed and bathroom pod layout

bed, bathroom and kitchen pod layout
a rehabilitative response to homelessness
The result of the thesis, DWELLEVATOR, is one that perhaps does not answer a lot of questions, but instead raises a great number. What exactly is the role of the architect when assisting the homeless? Can architecture lay the grounds for what policy makers can soon enact to help those homeless individuals who want nothing more than to live an ordinary life? DWELLEVATOR is but a small sample of the possibilities for the assistance of the homeless.

According to Professor Martin Despang:

"Jake made himself and the audience aware of two phenomena in his State of Nebraska and his country: the increase of homelessness and the decrease of the conventional model of agribusiness and his retransformation into agriculture.

Based upon his analysis of the high cost of homelessness for society that still does not allow to shelter them in decency and dignity but in the most primitive, cheap way with light weight structure with barrack feel, Jake merged the two factors and came up with the striking idea of his "dwellevators".

His rediscovered capital are the iconic corn and grain elevators and their strategic proximity to the railroad tracks, which as part of the national infrastructural stimulus plan will regain strategic societal priority and already represent the traditional mode of transportation for the homeless community, which is increasingly forced into nationwide nomadism.

With entrepreneurial opportunism Jake identifies the rational tectonics of the elevators as potential for intriguing spaces and places for human and humanitarian inhabitation. Particularly the thermal massing property of the given concrete construction is being utilized for good indoor thermal quality.

Jake developed a catalogue of techniques that respond to different locations and requirements and allow a wide variety from minimum intervention to spaces that made the design thesis jurors admit that they want to move in themselves.

His entire body of "found object" transformations share that they provide space that to a maximum degree is respectfully responsive to human need and desire and achieve this with the most minimum means of simple indigenous methods and materials in combination with the imaginative use of innovative technologies and building systems as heliostropic light and vacuum insulation."


ACKNOWLEDGEMENTS

Thank you...

To my mentor, Professor Martin Despang, for all of your valuable input and more importantly, for your continued support during those tough times and for constantly pushing me to be the best I can be.

To my guest critics throughout the year - Professor Chris Ford, Professor Erhard Schuetz, Professor Brian Andrews. Your criticism was always well directed and helped to shape this project into what it has become. Our discussions always left me thinking and most importantly thinking about the role of the architect for the homeless.

To my family for always supporting me and reminding me that everything will work out, no matter how tough times would get. And to Brandi for volunteering her time to bring me dinner and to help build models.

To my fellow thesis students and classmates, without whom I couldn’t possibly have finished thesis. You were there when I needed help pouring concrete for hours, and there to help move 500lb. models into the crit space before my final presentation. You were there to go get coffee just before they closed (even if it meant getting hit by a car) and you were there to hit the bars after a semester’s hard work. But most importantly, you were there as friends. We’ve shared some amazing times over the years and I know that these past 6 years, though tough as ever, were some of the best times of my life.

Finally, to Stacie - who I don’t know where I would be without. You were constantly there reminding me of what was important in life. You made everything fun. I’ll never forget our drive to Albion, hanging out the window while driving 65 mph, photographing every silo from Lincoln to Albion. Thank you for your constant love and support.
A special thanks to Mike Houston, Ryan Henrickson, Jamison Burt, Brett Rottinghaus, Ryan Huber, Nate Bicak, and Laura Brodersen for all of your time and effort in pouring numerous concrete molds throughout the year.