

# **“PRISON” AS A MIND-TUNING ARCHITECTURE: THE GRACE CENTRE**

by  
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## ABSTRACT

Prisons had been recognized as horror place for punishing evil doers through out history, Although today's goal of prisons is slowly shifting from punishment towards rehabilitation, it is hard to see prisons beyond punitive facilities. When a prison is designed to punish and oppress inmates, the stress level of both inmates and guards are higher, which will have a dramatic influence on the effectiveness of rehabilitation. This thesis challenges the idea of designing prison as a punitive facility, and proposes a different perspective on prison design. Every environment has a psychological influence on the mental states of the inhabitants. How we perceive a space (see, hear, smell and feel) affects our attitude and behavior subconsciously. A well designed prison should enhance the rehabilitation process Through research and precedent cases studies, this thesis examines the mental impact of designed spaces, and how this knowledge may be applied to future prison designs to reduce the mental stress among inmates and guards.

Key Words: Prison, Rehabilitation, Psychological influence

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## TABLE OF CONTENTS

<b>ABSTRACT</b>	<b>ii</b>
<b>ACKNOWLEDGEMENT</b>	<b>iii</b>
<b>1. INTRODUCTION</b>	<b>1</b>
<b>2. HISTORY AND PHILOSOPHY OF PRISON</b>	<b>4</b>
Development of prison philosophy	4
Evolution of prison architecture	6
<b>3. NEW GENERATION OF PRISONS</b>	<b>12</b>
Experimental prisons in Europe	12
<b>4. GIRL JUVENILE DETENTION CENTRE: GRACE CENTRE</b>	<b>17</b>
The project	17
The site	19
The design	20
The program	27
<b>5. CONCLUSION</b>	<b>29</b>
<b>LIST OF FIGURES</b>	<b>30</b>
<b>LIST OF PLATES</b>	<b>31</b>
<b>BIBLIOGRAPHY</b>	<b>32</b>
<b>Drawings Enlarged</b>	<b>34</b>
<b>Appendix A</b>	<b>37</b>
<b>Appendix B</b>	<b>39</b>

## INTRODUCTION

In our society, the justice system plays an essential role in keeping social order, and prisons are an indispensable part of it. Throughout history, the purpose of prison has been to provide forced containment of criminals to ensure public safety, and to give unlawful citizens the punishment they are believed to deserve. The wall of a prison is like a barrier between good and evil, and a statement of consequences to the outlaws. However, today's prison is not only about punishment and confinement, but it must also contribute to the re-formation of the prisoners. Research shows almost all of the current prisoners will re-enter society sometime in the future, whether on release or on parole. It becomes essential to rehabilitate criminals and prepare them for the day of re-entry. In a sense, the effectiveness of rehabilitation in a prison should be no less crucial than the effectiveness of incarceration. The prisons built in history were not designed to rehabilitate inmates, but today, architects should pay more attention to the goal of rehabilitation as we design new prisons and revise our existing prisons.

No one is born a criminal, nor is anyone's character written in stone. People do change. In fact, we change every day under the influence of our environment, community and culture, and so will the individuals who are deprived of their freedom and are placed in a prison environment. It is considered a failure if the offenders are released no better a person than when they were incarcerated, and the consequences could be the entire community. This is especially true among youth offenders because they are at a sensitive and adaptive age, and can be easily influenced by their environment. Many of them committed crimes out of an impulsive and immature act, often as

a result of being misled or mistreated by their parents or peers<sup>1</sup>. The future of these children should not be shaped by a harsh institutional environment, which in many ways induces a feeling of shame and hopelessness. Youth are more mentally vulnerable than adults; they need support to make appropriate changes more than they need punishment. By incarcerating them, their freedom has already been taken away, removing them from the civilized world and bundling them up with other problem youth. The environment and programs designed for this group of people need to be handled with extra care to avoid sending out the message: "A criminal is who you are."

Currently, we may be facing the largest prison expansion in Canada since 1930. The Canadian Prime Minister Stephen Harper has recently tabled a tough-on-crime bill (Bill C-10) in the attempt to create a safer community. This bill includes giving longer sentences for drug offences and other serious crimes, putting an end to house arrest for serious crimes, and making amendments to the Youth Criminal Justice Act in order to hold violent youth offenders accountable for their crimes<sup>2</sup>. This bill is expected to significantly increase the number of inmates in prison if passed, yet a significant portion of this increase will be among youth offenders.

Furthermore, many Federal and Provincial prisons are already overcrowded, even without the new bill. Prison overcrowding is known to increase the mental tension between inmates and guards, as well as among inmates themselves. A study from the United States shows that when a prison is over 137% of its capacity, it is likely to lead to cruel and unusual punishment, yet some of our Canadian prisons are already running at 200% capacity<sup>3</sup>. The conservative party is very determined on passing this bill, and they have planned to invest 2 billion dollars for prison expansion across Canada, adding 2,700 cell rooms to house inmates<sup>4</sup>. However, housing them is not the only challenge. Helping them rehabilitate so they do not come back once released is just as important. This bill may upsurge the violence rate in prison if the government does not find a comprehensive and holistic solution. The real challenge is to design architecture that assists the rehabilitation programs by reducing the stress between inmates and

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1 Bortner, M. A., and Linda M. Williams. "The Kept, the Keepers, the Social Order." Introduction. *Youth in Prison: We the People of Unit Four*. New York: Routledge, 1997. X-Xvii. Print.

2 News, CBC. "9 Key Elements of the Crime Bill." CBC news. CBC/Radio Canada, 21 Sept. 2011. Web. 18 May 2012. <<http://www.cbc.ca/news/canada/story/2011/09/21/f-federal-crime-legislation.html>>.

3 MacCharles, Tonda. "Canada News: No Crisis of Overcrowding in Canada's 2019s Prison System: Corrections Head - Thestar.com." News, Toronto, GTA, Sports, Business, Entertainment, Canada, World, Breaking - Thestar.com. Toronto Star, 18 Oct. 2011. Web. 05 Dec. 2011. <<http://www.thestar.com/news/article/1072055>>.

4 Carlson, Kathryn Blaze. "The Largest Expansion of Prison Building since The 1930s." National Post, 4 Sept. 2011. Web. 08 Aug. 2012. <<http://news.nationalpost.com/2011/09/24/the-largest-expansion-of-prison-building-since-the-1930s/>>.

prison staff and keeping the inmates calm.

The prison environment has enormous effects on inmate's mental state, and directly influences the efficiency of the rehabilitation programs. A prisons study in U.S. shows many prisoners, especially women and children, become mentally ill or mentally unstable under the constrains of prison environment<sup>5</sup>. The design of prisons has an undeniable contribution to this phenomenon. This thesis will try to bring a different perspective to prison design in North America by viewing prisons as rehabilitation centers. Its aim is to study the impact that prison environment has on the mind of its prisoners and staff, and to propose a new design Juvenile detention centre for girls in Ottawa, in attempt to reduce mental stress through architectural space.

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<sup>5</sup> Steadman, H. J., F. C. Osher, P. C. Robbins, et al., "Prevalence of Serious Mental Illness Among Jail Inmates." *Psychiatric Services* 60.6 (2009): 761-65. Print.

# HISTORY AND PHILOSOPHY OF PRISON

## DEVELOPMENT OF PRISON PHILOSOPHY

### Origin of prisons

The notion of imprisonment is not a new concept. It is an essential part of a society in serving justice. However, the definition of what constitutes a prison environment has been shifting throughout history, and the idea of using imprisonment as a form of punishment to pay for crime is relatively recent. By nature, people tend to look for quick and direct methods to punish criminals and restore justice rather than a lengthy one. In the ancient period, the penalties for crimes went from punishment through death, being sent to war, being forced into labour, physical punishment, or financial compensation, but it never entailed being incarcerated for a period of time. It wasn't until late medieval times that confinement was used as punishment<sup>1</sup>. It is somewhat against human nature to think of incarceration as a way to pay for crime, because punishment, in the traditional sense, is a proactive act to restore justice, yet incarceration is a passive solution. In those times, prisons were used to temporarily captivate criminals before their trial or execution, or before they paid their full compensation. The one and only purpose of early prisons was to ensure that criminals could not flee without paying for their crimes. Prison was a place to wait, not a place to stay. Therefore, very little attention was given to the condition of prison spaces in historical times.

People often imagine early prisons to be the dark dungeons in a castle or fortresses,

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<sup>1</sup> Ralph B. Pugh, *Imprisonment in Medieval England* (Cambridge, 1968), esp. Chap 1.

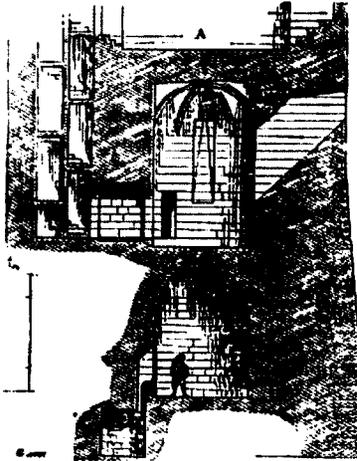


Fig 1. Prison Chamber, Pierrefonds Château, France.

however, those were rarely the case. Dungeons are originally built to be used as storages, and were considered too valuable to be used for imprisonment. In many cases, prisoners were kept in timber cages inside castle's courtyards or large halls. It wasn't until after the 12th century that the prison actually became a form of architecture<sup>2</sup>. Prison architecture started as chambers inside massive brick towers in castles, which were often lightless with only an air shaft and a toilet shaft. These prisons were far from being hygienic; insects and rats were very common. However, unlike our centralized mega-prisons today, the prisons at that time were small in scale. Since the length of imprisonment was relatively short and the number of prisoners remained small, the foul conditions of prisons did not rise to attention.

#### Religious Prison

Although there are records of prisons since the beginning of human history, today's prison architecture is directly inspired by late medieval religious prisons. Ever since the reign of Constantine the Great, Christianity has had a large political influence on Western Society. Many churches had their own prisons, judging offenders under their aegis in their own rules, including clergy, clerks, functionaries, monks, etc. These religious prisons are often in the abbey, or a few rooms in the church facility, dedicated for this purpose<sup>3</sup>. Since the Christian dogma centres on repentance and mercy, shedding blood was considered intolerable in this tradition, even on sinners. Instead, confinement of individuals was used as a substitute for a death sentence or mutilation of the body.

The early religious prisons were not that different from other local prisons in architectural condition. However, because their objective is different, a new form of prison emerged over time. Unlike early prisons, later religious prisons were not only purposed to punish the wrongdoers, but also to provide a condition to induce penitence. It was believed that solitude and darkness can make people reflect on their lives, and induce the feeling of penitence<sup>4</sup>. Hence, dim prison cells became popular, especially during the late medieval period. Prisons built during the Inquisition were solely based on this concept, where prisoners sentenced to life-in-prison were kept in underground single rooms, separate from each other and the world. Church prisons marked the beginning of single prison cells, which is the basis of today's prisons architecture. Nevertheless, because Christian philosophy was almost only concerned with the redemption of the soul and preparing for the afterlife, the physical comfort of prisoners in this life

2 Norman Johnston, *The Human Cage* (New York, 1973) p. 7

3 *ibid.*, p. 8

4 Bentham, Jeremy, and John Bowring. *The Works of Jeremy Bentham*. Vol. 1. Edinburgh: W. Tait, 1843. Print.

was hardly given any attention.<sup>5</sup>

“Habits of Industry” Theory

During the medieval period, prisons remained rooms or chambers inside other buildings, such as castles, fortresses, monasteries and churches, dedicated to locking up criminals. As the medieval period came to an end, the order of society became unstable as feudalism broke up in Europe. The result of this unrest was an upsurge in petty crimes and vagrancy rates, which instantly overcrowded the existing prisons spaces. At the same time, strongly influenced by the new humanitarian thinking, the public demanded less brutal treatment for minor offenses, because the sanguinary treatment of crime in those days seemed too much for the petty criminals. Furthermore, during the 16th century, people believed that these minor offenders can be rehabilitated through regular working, building a “habits of industry”<sup>6</sup>. The solution was to build new prisons around the idea of workhouses, in the attempt to rehabilitate petty offenders. From there, a new purpose was given to prison – rebuilding a new habit of life, which laid the foundation of today’s prison philosophy.

## EVOLUTION OF PRISON ARCHITECTURE

Workhouse prisons

Prisons were not standalone architectures until after 1550s. However, most of these workhouse prison architectures were in the form of a hollow square, and many were converted from hospitals, convents, and palaces. London Bridewell prison was one of the first workhouse prisons, converted from a royal palace in 1557<sup>7</sup>. Prisoners would work during the day and sleep in common rooms at night. Only youth offenders with well-to-do parents and people with social standing were granted private rooms. Although the attitude had changed towards re-

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5 Norman Johnston, *The Human Cage* (New York, 1973), p. 10

6 *ibid.*,

7 *ibid.*,

habilitating offenders through work, the prison architecture did not reflect such change.

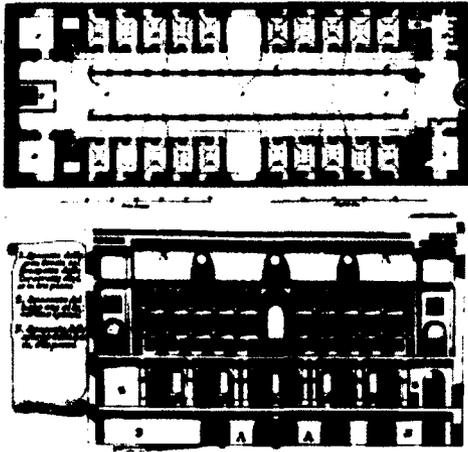


Fig 2. Youth House of correction, Hospice of San Michele, Rome, 1705. Top: Plan, Bottom: Elevation

The real breakthrough in prison architecture came in the 1700s, as a few architects and scholars became interested in the issue. San Michele Juvenile prison in Rome was one of the first prisons designed and built for this purpose, opened in 1704. The architect, Carlo Fontana, designed this single cell based prison to house 60 youth offenders at the time. The prison is a rectangular masonry building with ten individual cells on each side of the three floors. In between the two rows of cell rooms is a large hall, which was used as workroom, dining room, and as a chapel for religious functions. Each room would have a small window to the outside, and peephole on the door to the galleries. The boys would work during the day, manufacturing objects. This is the first attempt to separate youth offenders from the more serious adult offenders. From there, a few other prisons rose up following the same principles, such as House of Correction in Milan in the late 1750s, and the famous Maison de Force at Ghent in 1773.

Pushed by the need of new prison space, prisons became larger and larger in scale, and architects started to give attention to prison designs. The Ghent prison was one of the first large scale prisons where the architecture was consciously designed to aid the workhouse treatment philosophy at the time. The most significant step in prison design during this time was the attempt to separate prisoners based on their sexes, age, type of crime committed, and length of stay. This became a cornerstone for future prison development.

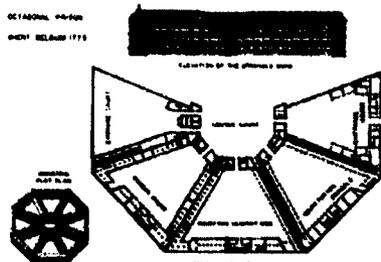


Fig 3. Maison de Force, Ghent.

However, the houses of correction in Rome, Milan and Ghent were rare cases during the 18th century. It would be naïve to assume those represented the standards of the time. The majority of prisons built during that time were architecturally characterless, with large shared rooms and exercise yard. The cost to build individual cells for each prisoner with the limited technology and material at the time was unbearable for any government. When not working, prisoners were kept locked up in large rooms unsupervised, and little was done to separate prisoners by their sexes, ages, or even health conditions. Prisons were often overcrowded and filthy. Food and water were only given to those with money. As a result, many prisoners died of abuse and what was called the "jail fever", or typhus. After the workhouse movement in the 16th century, prisons had become standalone architectures, but despite the few model prisons in the late 18th century, most prisons varied little from other buildings of the same scale.

At the end of the 18th century, as the public became more aware of the actual poor living conditions inside prisons, more and more scholars and architects became interested in prison design and philosophy. John Howard was one of these enlightened individuals, who later started the English Prison Reform in 1777<sup>8</sup>. He visited numerous prisons across Europe, and was shocked by the conditions and lack of supervision. Although the authorities believed working could help prisoners reform and build a healthy working habit, Howard had come to the conclusion that the negative influence prisoners had on each other made reformation nearly impossible. With the rise of the industrial age in the 19th century, iron became affordable, making cell based prison architecture no longer a dream.<sup>9</sup> In the effort to improve the effectiveness of prison, three predominant layouts emerged during this period: the rectangular layout, the circular or polygonal layout, and the radial layout. Rectangular or "H" shaped layouts are based on the old prison layout, but with single cell rooms and slightly improved in conditions. However, the appearance of the circular layout and the radial layout was an important step which led to modern prison design.

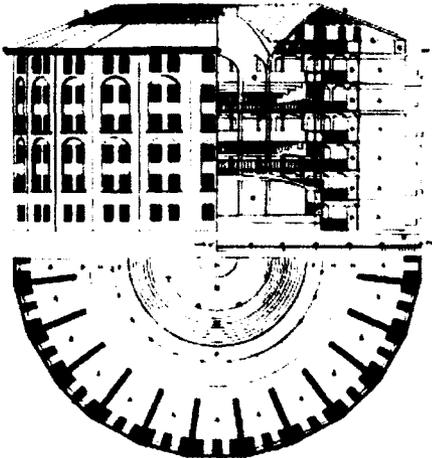


Fig 4. Jeremy Bantham's Panopticon

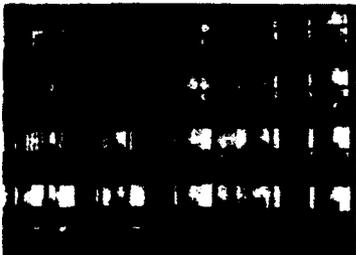


Fig 5. Interior of panopticon cellhouse, Isle of Pines.

Circular prison layout was first introduced in Jeremy Bentham's innovative proposal - The Panopticon, in 1787. The idea of the Panopticon was to have the keeper's tower in the center and all the prison cells spread into a circular form over six tiers for easy supervision<sup>10</sup>. Each cell would be connected to the keeper's tower with a speaking tube, allowing auditory supervision of the prisoners. Although this proposal was considered impractical and was never built in Britain, it was adopted by other European countries in mid-19th century, as exemplified by the several circular prisons erected in Spain and Holland. It was also a direct influence to the large number of semicircular and polygonal prisons built in Ireland, Scotland as well as England several decades later. More than a century after the proposal of Jeremy Bentham's Panopticon, Illinois Penitentiary was built in Cuba in 1926, which was an enlarged but faithful reproduction of Panopticon.

The advantage of this circular plan is that supervision was made easy by placing all prison cells as "gallery display", which left prisoners with absolutely no privacy. However, although problems were quickly detected, accessibility was an issue. It could take the guards a couple of minutes to get down from the observation

8 Norman Johnston, *The Human Cage* (New York, 1973), p. 16

9 *ibid*, p.17

10 Bentham, *Jeremy The Panopticon Writings*. Ed. Miran Bozovic (London: Verso, 1995). p. 29-95

tower, run across the span, and go up a staircase again to get to the problem cells. The space between the keeper's tower and the prison cells are often underused, and this prison layout allows no room for expansion. Another problem is the unbearable noise. The hollowness and the hard surfaces amplify every little sound, and the round shape keeps the sound echoing inside the building. Although easy visual supervision was provided, it was soon proven ineffective and brought more frustration to both guards and prisoners.

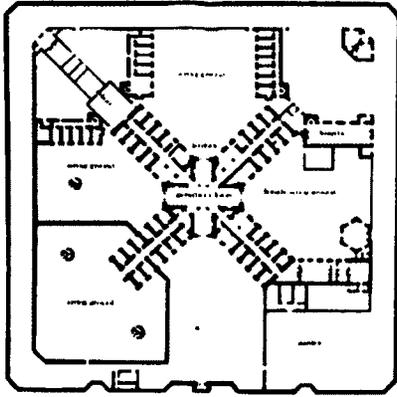


Fig 6. Blackburn's Suffolk County Jail, Ipswich, England, 1784-1790

Although the Panopticon style was popular in continental Europe, it was not in Britain. During this time of reformation, another prison layout was put on trial and became predominant in Britain: the cross layout, which later developed into radial or star-shaped layout. This cruciform layout had been used for hospitals, schools and arsenals since the 17th century, but it was the first introduced to prison design by a London architect, William Blackburn, near the end of the 18th century. At the intersection of the cross is the command center, and the four wings are the prison cells lined up along either wall, with a central corridor. The advantage of this layout is the easy inspection of the corridors from the center, as well as the ability to separate prisoners in to different classes and house them in different wings. On the other hand, it makes the monitoring of each cell difficult, as it can only be done by walking up and down each corridor. However, this layout is highly efficient for holding large number of prisoners, and was quickly evolved into radial layout with multiple wings. Many prisons today still borrow from this layout.

Radial form of prison became most popular during the 19th century as the prison population continued to rise, and was favored by Americans, especially in the northern states. Those were modified based on the cruciform layout, with the command center in the middle and 3 to 7 cellblocks radiating from it, extended off by a short passageway. The advantage of the radial layout is that cell-wings can be added later on as the prison population grows.



Fig 7. Haviland's Eastern Penitentiary, Philadelphia, 1821-1836

The Eastern State Penitentiary, opened in Philadelphia in 1829, was one of the first and largest radial formed mega-prisons. It was so famous that it became the "Pennsylvania style", a prototype for 300 prisons later on. At the time, Eastern State Penitentiary was the largest and most expensive architecture ever built of any kind in America<sup>11</sup>, consisting of 7 wings of cell rooms. More wings were added throughout its lifespan, and by the time it was closed down in 1971, there were a total of 15 wings. This building was built in heavy stone walls, with dim

11 Norman Johnston, *The Human Cage* (New York, 1973), p. 31

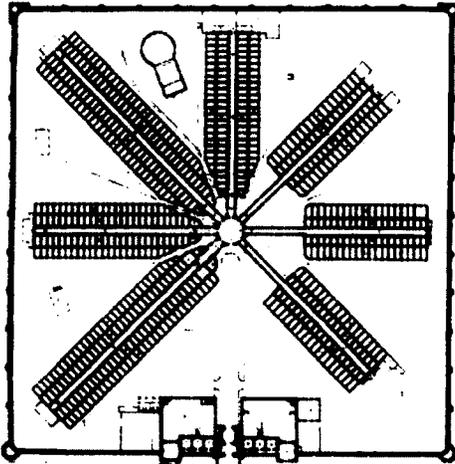


Fig 8. Eastern State Penitentiary (Cherry Hill), Philadelphia, 1821. Plan as completed in 1836.

and isolated cells, because it was believed that prisons had to look horrific and oppressive to incite a desirable degree of abhorrence so prisoners will repent. The Building commissioners had stated that “the exterior of a solitary prison should exhibit as much as possible great strength and coney to the mind a cheerless blank indicative of the misery which awaits the unhappy being who enters within its walls.”<sup>12</sup> The architect, John Haviland, designed a tiny skylight in the cells, which was the only natural light source, called the “Eye of God”<sup>13</sup>, and the prisoners were supposed to repent to it. Complete isolation was forced in this prison, where talking was strictly forbidden, and prisoners were kept in their own cells 23 hours a day, because it was believed that solitude could bring criminals to their conscience. Prisoners who attempted to break the rule of solitary confinement were brutally punished.

The 18th and 19th centuries were a period of change for prison architecture, witnessing the birth of two completely different layouts: the circular layout and the radial layout. Nonetheless, these designs all shared one common character - solitary confinement of prisoners in tiny and gloomy cells. Besides the penitential prison philosophy at the time, individual cells were also meant to make the prisoners safer and healthier by keeping them away from bad influences and spreading of diseases. However, after a few decades, the authorities finally realized that physical health was not everything prisoners needed. The emptiness in prisoner’s daily lives had drained their soul, and a huge number of prisoners went insane in those cells. According to Charles Dickens, an English writer who had visited the Eastern State Penitentiary, the mental torturing in prison was far crueller than any form of physical torment<sup>14</sup>. In the 20th century, solitary confinement was slowly abandoned for general imprisonment.

#### Modern prisons

In the 20th century, prison architecture went through another reformation. The numerous mental illness cases from 19th century prisons caught the attention of doctors and psychiatrists, who had offered their advice after investigating these cases. Needless to say, the forced solitude had no positive effect on prisoners’ penitence based on past experiences. Although the goal of prisons was still to reform individual criminals besides punishing them for their crime, the method has shifted from “forcing self-reflection” towards “education and rehabilitation”. A number of different facilities were being gradually added to the prison system, such as vocation training, skill building

12 Book of Minutes of the Building Commissioners, bound MSS in Archives of Eastern Penitentiary, p. 115.

13 Norman Johnston, *The Human Cage* (New York, 1973)

14 Charles Dickens, *Philadelphia, and its Solitary Prison*, (1842) Ch. 7

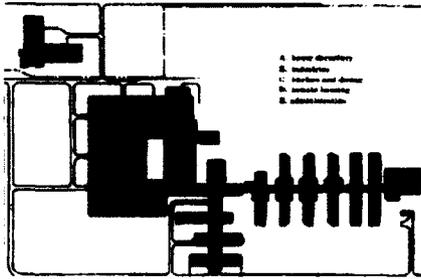


Fig 9. Telephone Pole Organization, Ohio Correctional Institution, Marion, opened 1955

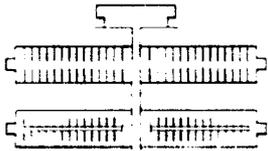


Fig 10. Telephone Pole Organization, Pennsylvania Style & Auburn Style

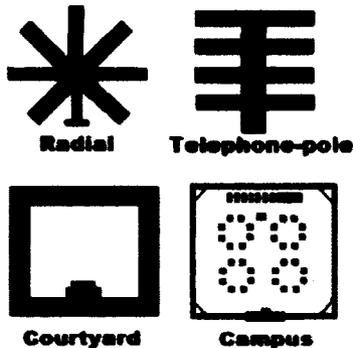


Fig 11. Prison Layout Diagrams,

classes, consultation, gym, etc. These facilities required a lot more movements for the inmates. In accommodating this need, two other forms of prison emerged: Telephone-Pole layout and Campus layout.

As more facilities were being added, another issue became unavoidable - how to move the prisoners around safely and orderly? The occurrence of Telephone-Pole plan was inevitable. It consists a long central corridor with all kinds of facilities extending off perpendicularly from it, such as cellblocks, shops, classrooms, dining rooms and kitchens, workshops, etc. Similar style layouts had been used in hospitals as early as 18th century. The cellblocks in this layout are either in the Pennsylvania style, with cells along the walls and corridor in the center, or in Auburn style, with the cells lined up back to back in the center and corridors around. These cell resembled college dormitories in the 1930s. The advantage of this layout is that it provides easy accessibility to different facilities, and allows the prison to be divided into different security levels based on the type of criminals and type of activity in a space. It even allows part of the prison to be closed off during different times of the day, which minimizes the need for security staff. Telephone-Pole layout became the stereotypical prison in the U.S. after WWII.

In late 20th century, the campus style prison was developed. The psychologists found out, through conversations with the inmates, that social communication plays an important part in keeping prisoners mentally healthy, and smaller communities are both easier for the inmates to adapt to and easier for the staff to manage. With campus plan, buildings are arranged in clusters. In each cluster there are cellblocks, school, dining rooms, and other services surrounding an open central area, forming a community. Inmates walk outside to access different facilities, which is supposed to have a positive effect on inmates' mental health, as well as reducing inmate congestion. This is the most popular prison layout used in today's prison designs. For the first time in history, the prisons are starting to be designed with attention to how the inmates experience the building. Needless to say, there were many reasons why the prison system did not work in the past. Turning the design focus towards prisoners is the start of a change, which may actually result in more effective and successful rehabilitative prisons.

## NEW GENERATION OF PRISONS

### EXPERIMENTAL PRISONS IN EUROPE

Our society seems to understand that the purpose of prison has to shift from punitive to rehabilitative. The goal of imprisonment today is to transform and reintegrate offenders. The general underlying desire is that when released, they would be drawn to a stable life, with potential for employment, reducing the potential for a return to crime. However, the physical environment and system structure of today's prison design does not seem to correspond adequately to this new concept. Decades have passed since this concept of rehabilitation was first introduced. One could observe a general intent to make the prisons environment more humane and provide training programs for rehabilitating offenders. However, when we observe in details the designs and rehabilitation programs, the changes are of such a nature as to make little difference or impact on the life of the inmates. Prisons are still confined, restricted, and oppressive environments. It's hard to see prisons beyond a punitive facility. As society, we seem to want criminals to suffer for their crime, even when we understand excessive or prolonged punishment may lead to mental destruction, and counter the rehabilitative work.

Today, Criminals often leave prison in a worse mental condition than when they entered<sup>1</sup>. Records show between 50% - 60% of criminals in both England and U.S. end up back to prison within 2 years after

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<sup>1</sup> North Shore News. "Canada's Prison Statistics Are Sobering." Canada.com. Canada.com, 28 May 2008. Web. 12 Apr. 2012. <<http://www.canada.com/northshorenews/news/viewpoint/story.html?id=75599e4a-1bfc-4bdf-9203-0e9d79021b13>>.

release<sup>2</sup>. How can we restore justice in our society by making bad people worse? Although punishment might satisfy the public's demand for justice, it is not the solution towards a better society. There is a new tendency, not validated or accepted by all as of yet, which would implement this concept of rehabilitation over punishment from a different perspective. A new generation of experimental prisons has started to rise in Europe, where prisoners are treated with excellent care, creating living an environment comparable to that of a middle class society. The belief is that if offenders are treated well, with kindness and care, they will be influenced to become a better person when they are released. The Bastoy Island Prison and the Halden Prison in Norway, as well as the Justice and Detention Center in Leoben, Austria are three leading models of this concept.

#### Justice and Detention Center in Leoben

Justice and Detention Center in Leoben, Austria, which opened in 2005, is now famous for the quality of the living conditions it offers to inmates. Each inmate has his own room, with bathroom, TV, huge windows, fine wood furniture, and even a small balcony. Each unit of 15 inmates would share a large communal space, where microwaves, tables, sofas are provided. Facilities such as gymnasium, fitness room, clinics, and outdoor landscape gardens are also available. Extra effort was made to control noise level, by using carpets and soft surface materials. Unlike traditional correctional institutes, almost the entire building is wrapped in glass, allowing the indoor space to be washed with sunlight during the day. The goal of the design was for an inmate to experience the life of a normal person. Hohensinn, the architect who designed this prison, said: "They are criminals, but they are also human beings. The more normal a life you give them here, the less necessary it is to re-socialize them when they leave." He said his principle was to have "maximum security outside, maximum freedom inside."<sup>3</sup> This is a new concept for prison design, not yet widely accepted. Many have argued against this concept, saying it will encourage people to commit crime and be "rewarded", especially in North American countries. It has been most common in North America to use tough indestructible materials in prisons, not to have large windows, and not to give inmates freedom or comfort, because it was claimed that inmates would not value any of it. Can offenders be proven trustworthy again in a nice environment? The fact is that after years of operation, the Justice and Detention Center still looks as good as new.

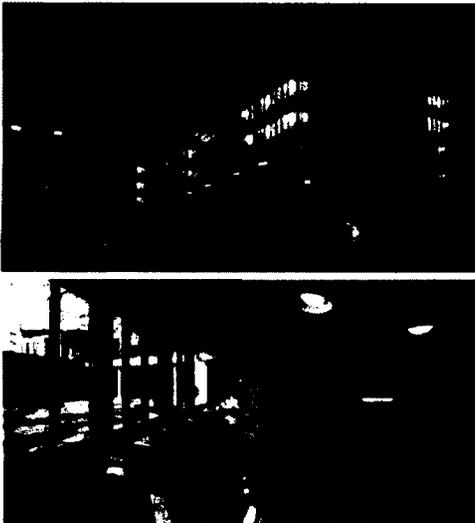


Fig 12-14. Justice and Detention Center in Leoben, Austria. Top: exterior view. Bottom-left: Hallway washed with sunlight and vibrant colors., Bottom-right: Shared communal space.

<sup>2</sup> Sophie, Wiseman. "Skandinavian Luxury Prison." BIGdayNews. Bigdaynews.com, 7 Oct. 2010. Web. 18 Mar. 2012. <<http://bigdaynews.com/skandinavian-luxury-prison/652/>>.

<sup>3</sup> Lewis, Jim. "Behind Bars ... Sort Of." New York Times Magazine. New York Times, 10 June 2009. Web. 27 Mar. 2012. <[http://www.nytimes.com/2009/06/14/magazine/14prisons-t.html?pagewanted=1&\\_r=1](http://www.nytimes.com/2009/06/14/magazine/14prisons-t.html?pagewanted=1&_r=1)>.

News reporter Jim Lewis said, not one case of vandalism was found when he visited the prison in 2009, and the entire place was quiet and peaceful.<sup>4</sup> Although it is still too early to conclude whether or not this prison would have a positive influence on their recidivism rates, it surely has shown no negative effects on society. Despite of the criticisms, these “luxury prisons” have shown promising results.

#### Halden Fengsel Prison



Fig 15-17. Halden Fengsel Prison, Norway. Left: Chapel for prisoners. Top: dorm room, Bottom: prisoners attending a music class.

Similarly, the Halden Fengsel prison in Norway, which just opened in 2010, also offers prisoners an apartment style environment. Prisoners here have single bedrooms, large bar-less windows, shared kitchen and common rooms with flat-screen TVs, sofas, a chapel, a gymnasium, fitness rooms, classrooms, and even a recording studio and a jogging trail in the woods. They are not only offered academic and skills training, but also art and music classes. They have physical trainers, therapists, counselors, and they can play sports with guards. Many may argue that this isn't fair to victims, and that criminals must pay with suffering for their deeds. On the other hand, it can also be argued that suffering will only harden criminals and nourish the hatred inside them. Are Hoidal, the warden of Halden Fengsel prison, said: “When they arrived, many of them are in bad shape. We want to build them up, give them confidence through education and work and have them leave as better people.”<sup>5</sup> It is not being argued here that criminals should be rewarded, nor crime advocated, but it is suggested that punishment is not the best way to resolve the issue. A prison should not be giving offenders what they want, but what they really need to become better individuals in our society.

#### Bastoy Prison



Fig 18. Bastoy Prison Island, Norway.

Both the Justice and Detention Center of Leoben and the Halden Fengsel Prison are very new in the system, and it is hard to see their influence as possible precedents for future prison designs just yet. However, the Bastoy Prison in Norway has been around for 20 years. It is one of the first prisons that started the idea of treating prisoners well, trusting and respecting them, and maximizing their freedom within the prison. From the past records, it isn't hard to conclude that punishment and deprivation of freedom, rights of privacy, and in many cases

<sup>4</sup> *ibid.*,

<sup>5</sup> Mail Foreign Service. “World's Poshest Prison? Cells with En-suite Bathrooms and No Window Bars (plus £1m Banksy-style Art).” Mail Online. Daily Mail, 12 May 2010. Web. 02 Apr. 2012. <<http://www.dailymail.co.uk/news/article-1277158/Halden-Prison-Inside-Norways-posh-new-jail.html>>.



Fig 19-21. Bastoy Prison Island, Norway. Top: guard in Library, Middle: Prisoner working in Farm, Bottom: Prisoner working in bike shop.

dignity contradicts a major goal of prisons today, which is to rehabilitate and reintegrate offenders. This prison started in the 1990s, as a revolutionary experiment to test if a pleasant environment, social acceptance and trust can bring a convicted person to goodness. Bastoy is a tiny Norwegian island in Oslofjord, only 4km from mainland, dedicated for prison use. Unlike conventional prisons, this prison has no fences, no electrical wire, no iron bars, not even cell rooms. It's not a prison in the traditional sense. There are no cells, no bars, not even surveillance cameras here. Inmates here live in houses with 6-8 housemates instead of prison cells; they dress in their own clothes instead of uniforms; they have jobs during the day, and are free to leave their house and wonder around the island, enjoying the sun and beaches on their free time. They chat and laugh, and are treated as equals by the guards. Prisoners here have countless opportunity to run away, but rarely ever do they do. Instead, they choose to stay and to work and learn until their sentence is served. On top of that, Bastoy is the most ecological and low cost prison in Norway. Electricity here relies mostly on solar power, and people on the island travel by horse instead of cars. With education and supervision, prisoners farm, grow their own food, build their own houses and learn to face any problem they encounter in life with a positive attitude. They are not only "imprisoned" here, they operate and host this place. Not a single inmate escaped<sup>6</sup>. Prisoners here value the freedom and respect they get, as well as the opportunity to learn skills. Fifty year-old Gunnar Sorbye, a carpenter who works for the Bastoy prison said: "If I was told that my new neighbours were going to be newly released prisoners I would far rather they had spent the last years of their sentence working in Bastoy than rotting in a conventional prison."<sup>7</sup> There is a reason why Norway has the lowest recidivism rate of only 20%, comparing to 50-60% in US and around 40% in Canada<sup>8</sup>. The recidivism rate at Bastoy prison is only 16%<sup>9</sup>, showing us that rehabilitation works more effectively than punishment.

Often, an offender is either too impulsive to think about the consequence of his action or too arrogant to think of himself being caught. In neither case could the bad conditions of imprisonment make an impact on the crime rate. "It's absurd to think that the worse you make these places, the less recidivism you'll have," said

6 Abé, Nicola. "Prison without Punishment." The Week. 4 Mar. 2011. Web. 25 June 2012. <<http://theweek.com/article/index/212738/prison-without-punishment>>.

7 Hermu, Piers. "Norway's Controversial 'Cushy Prison' Experiment." Mail Online. 25 July 2011. Web. 12 Apr. 2012. <<http://www.dailymail.co.uk/home/moslive/article-1384308/Norways-controversial-cushy-prison-experiment--catch-UK.html>>.

8 Jilani, Zaid. "As The Right Bemoans Norway's Criminal Justice System, It Is One Of The Safest Countries On Earth." Think Progress Justice, 25 July 2011. Web. 25 June 2012. <<http://thinkprogress.org/justice/2011/07/25/277771/norway-is-safe/?mobile=nc>>.

9 Hermu, Piers. "Norway's Controversial 'cushy Prison' Experiment." Mail Online, 25 July 2011. Web. 12 Apr. 2012. <<http://www.dailymail.co.uk/home/moslive/article-1384308/Norways-controversial-cushy-prison-experiment--catch-UK.html>>.

Michael Jacobson, who was a commissioner of the New York City Department of Corrections<sup>10</sup>. It is non-arguable that a harsh environment evokes emotional behaviors, which leads to vandalism and assaults. The Justice Center in Leoben or the Halden prison, or the Bastoy prison in Norway do not cost more than a conventional prison, because most of the cost is on security and maintenance. The security level in North American prisons is often beyond necessary, and they require a much higher level of maintenance than Bastoy or Halden. From the cases in Norway and Austria, it is obvious that both prison guards and inmates benefit from being in a pleasant environment. Instead of spending so much on hard unbreakable materials such as concrete and steel, why not spend some on soft and natural materials like rubber and wood that can help an offender keep calm? Instead of using a dusty gray, why not use warm delightful colors that would reduce their desire to vandalize? If instead of just locking them up, we build offenders a new life, maybe they would view prison as an opportunity to change and learn, rather than a cage to escape from. Particularly in case of youth offenders, the prison life they are being brought into now can shape their life in future. It is our responsibility to make sure the influence of the environment is positive, and it is at our cost if the influence is not. Even though there is no definitive proof that a material and physical change in prison layout would bring a social change, some of these ideas can be tested in an experimental form to evaluate the results.

One needs to be mindful of the fact that, every country is different in cultural background, social norms and economy. Certainly, establishing an effective prison in Canada would require a thinking that is specific to the place and culture. There are many challenges when it comes to changing the way we design prisons, such as the political factor – criminal justice and human rights issues, public acceptance, as well as ecological and economic factors. How much should our government spend on these unproductive and misbehaving citizens comparing to our lawful citizens? Does our society believe bad people can change? Do we want them to change for the better or do we want them to suffer for their crime? Such change needs public support. Besides theoretical issues, there are also practical issues such as meeting the needs of convicts of different age groups and different genders; ensuring security of the space without intimidating the inmates or the guards; creating sustainable buildings that operate at lower cost, etc. These are difficult yet unavoidable issues. What makes a prison work is not merely the buildings itself, nor the system and policies, nor the people in the system, but the conjunction of all those matters. The environment, the programs for a targeted group, and the staff hired must all work together toward one goal in order to have a successful prison.

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10 Lewis, Jim. "Behind Bars ... Sort Of." *New York Times Magazine*, 10 June 2009. Web. 27 Mar. 2012. <[http://www.nytimes.com/2009/06/14/magazine/14prisons-t.html?pagewanted=1&\\_r=1](http://www.nytimes.com/2009/06/14/magazine/14prisons-t.html?pagewanted=1&_r=1)>.

GIRL JUVENILE DETENTION  
CENTRE: 'GRACE CENTRE'  
DESIGN PROPOSAL  
THE PROJECT

The built environment we are placed in has a significant impact on our attitude and behavior, as well as our mental wellbeing. Although a place cannot necessarily make a person happy or depressed, it could enhance these feelings by boosting or reducing our mental energy level. Designing to satisfy both the functional needs and the psychological desires can greatly influence the effectiveness of the space. This concept can become exceptionally useful in Juvenile detention centre designs, because the prison environment is known for great mental stress, and youth are much more vulnerable to mental stress than adults. Many design choices could be made towards reducing the stress level from psychological basis, such as color, lighting, material, scent, size and shape of each room. This design project is an experimental juvenile detention centre, the Grace Centre, for approximately 40 female offenders, focusing on the psychological influences of architectural environment.

The reason for designing a juvenile detention centre for girls is because their needs are often neglected. They have been housed together with male juvenile offenders throughout history, until the past few years. Although they are now housed independently, the prisons used to house them are designed for male offenders. Rarely was a detention centre designed to suit the needs of these girls. Although female offenders are the minority group, they have different needs than boys. Psychological research shows women react to environment differently from men, and they are much more sensitive to the surrounding environment, and much more likely to become mentally ill

in a prison setting<sup>1</sup>.

Designing a detention centre is essentially different from any other building, because the nature of such building involves various political and social issues, which are much more complicated and often confidential. It is acknowledged that many law restrictions and technical restrictions will apply in reality, which may or may not support this hypothetical design. However, the intent of this thesis is to propose a new approach in correction facility design, working with our sensory experience to reduce the mental stress among inmates and enhance rehabilitation. This design thesis starts with the overall layout and circulation of the detention centre, then zooms in to focus on the detailed space, applying psychological studies into the design of dorm rooms and living spaces, which have closer connection and influence to the mental state of the inhabitants.

Each person perceives the surrounding environment a little differently based on their own cultural backgrounds, life experiences, personality, and memories. People also vary in their sensory abilities. Some people may be more sensitive to sound environment, while others may be more sensitive to the visual environment. However, we do find common patterns and rules in people's reaction to the surrounding environment. Also, many previous studies and surveys have been done on prison related issues, which helped defining some common traits among the offenders. These studies and research will be used as the basis for this thesis design. Although personal interviews with the inhabitants would be appreciated, unfortunately it was not possible for this project because of security restrictions.

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<sup>1</sup> Brody, Lisa M., and Elizabeth E. Cauffman. Understanding the Female Offender. Rep. no. 216615. U.S. Department of Justice, Dec. 2006. Web. 25 July 2012. <<https://www.ncjrs.gov/pdffiles1/nij/grants/216615.pdf>>.

## THE SITE



Fig. 22. Site Photo

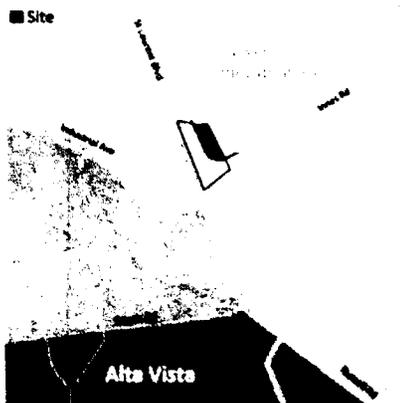


Plate 1. Key plan, Neighboring Communities

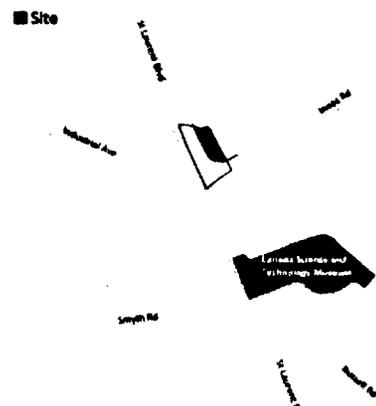


Plate 2. Key plan, the site is one block away from Canada Science and Technology Museum

The site selected for this experimental project is located at the intersection of St. Laurent Boulevard and Innes Road, near the east end of Ottawa city. It is on an undeveloped site of approximately 15 acres in the Cyrville Industrial park region, near the intersection with three other Ottawa neighborhoods, Riverview, Alta Vista, and Sheffield Glen. Approximately 5 acres will be dedicated to this project, and new roads would be built to access the site.

Although the site is outside the residential zones, the proximity to surrounding communities gives a sense of life to the area, making it less stressful for the girls who would be incarcerated here. One of the major deprivation in going to correction facility is the removal from society and family. Detention centre in the past were typically placed outside the city for security reasons. Being outside the city without public transportation makes it difficult even for family members to visit the offenders, yet a connection to their outside life is very essential to the inmate's mental health. Our selected site is off the city center, in between residential community regions and the industrial park region. It is easily accessible by public transportation, encouraging family visitation for lower class families.

Among juveniles, many of their offences occurred as a consequence of family dysfunction. Studies shows a great percentage of youth offenders lived under poor, abusive or broken families<sup>2</sup>. The difficulty with family relationships has a remarkable influence on the youthful mind, and girls often suffer more from poor family relations than boys because of their emotionally sensitive nature<sup>3</sup>. Restoring family relationship is crucial to the reformation of youth offenders, and providing convenience in family visitation is the foundation for rebuilding healthy family relations.

Continuing education is also an important issue for Juvenile detention centres, because the books the youth read and the skills they learn will determine their path in the future. On the south, just minutes away from the site, is the Canada Science and Technology Museum. This opens the opportunity for the detention centre to arrange educational tours with the museum, offering the youth offenders a positive and dynamic learning environment and motivating them to learn new knowledge.

2 Council on Crime and Justice, comp. A Retrospective Study of Juvenile Offenders with Serious Adult Criminal Records. Rep. Hennepin County: Council on Crime and Justice, 2000. Print.

3 Broidy, Lisa M., and Elizabeth E. Cauffman. Understanding the Female Offender. Rep. no. 216615. U.S. Department of Justice, Dec. 2006. Web. 25 July 2012. <<https://www.ncjrs.gov/pdffiles1/nij/grants/216615.pdf>>.

On the east side of the neighborhood, a number of hospitals and a health care centers are within reach, including Ottawa Hospital Riverside Campus, Children's Hospital of Eastern Ontario, Ottawa Hospital Rehabilitation Center, Ottawa Health Science Center, Perley and Rideau Veterans' Health Centre, and Canadian Forces Health Care Center. These could open an opportunity for community service work for well behaving youth offenders. Reintegrating these youth into the community, and helping them to find their value is important for re-establishing their self-esteem.

Detention centres are different from other forms of architecture, because most of the activity happens within itself, and the inhabitants rarely have the chance to connect with the surrounding neighborhoods. Therefore, immediate relationship with adjacent buildings is not as crucial. However, the neighborhood of the site will determine the programs available in the detention centre, as well as help establish a positive atmosphere. It is important that juvenile detention centres are placed in or near a community, not outside the city on vacant lands, which induces the feeling of abandonment and stress among inmates.

## THE DESIGN

### Layout

The layout of detention centre facilities has evolved over time from the rectangular work-house layout in the 16th century, to circular and radial layout in the 18th & 19th century, then to the telephone-pole layout in the 20th century, and now to the currently popular campus layout. Although prison architecture had improved over time in terms of security function and management, the rehabilitative function of prison has not shown a notable result. One could argue that simply inventing new layouts for detention centres on a macro scale is not the solution to reducing mental stress. It is the environment on a micro scale that has more immediate impact on the emotional well-being of inmates and staff. However, the layout will determine how the detention centre operates, and therefore cannot be neglected either. Many studies and research were put into these past layout designs, which are worth understanding and perhaps borrowing. The layout of this detention centre design is a derivation from the campus layout, based on

the same concept of forming smaller community groups and encouraging inmates to walk out doors to access different facilities. These two concepts are very important in keeping inmates mentally healthy.



Plate 3. Prison Layout, Buildings are organized by function, forming zones for different purposes.

People living in a normal community move between various environments every day, for example, home, school, workplace, park, shopping center, or other people's homes, and we behave differently under those environments. However, often in prison, inmates stay in the same building throughout their entire stay. This not only dissociates them from a normal community life, it also emphasizes the feeling of confinement and creates mental stress. Shifting between different environments is essential to the mental wellbeing of inmates. Places are designed for different purposes, and the architecture subliminally tells people the expected behavior in the specific environment. The layout of this juvenile detention centre is separated into 4 major environments: living, studying, administrative support, and outdoor activity. A curved outdoor path connects these 4 zones. Each of these environments promotes a different way of behaving; hence, each requires a different type of architecture.

In the center of the site are the living units. The living environment is an individual's mental refuge, and perhaps the most important space to one's psychological wellbeing. It is a personal environment, therefore should be intimate, relaxing, respectful to their privacy, and encouraging to friendly conversations. People are more open to each other in smaller community groups, and build friendship and trust faster. Often in prison, inmates are placed in identical cells along a long corridor, which bears no sense of community. For this design, the juveniles are housed into house-like living units in groups of 7-8 people, under direct and indirect supervision by staff. The living units are arranged in a semi-circle, surrounding a shared outdoor landscape garden. Buildings of small scale are used for living environment to bring intimacy and privacy, at the same time, break away from the institutional prison. Smaller scale buildings also suggest to the inhabitants a sense of control and ownership, whereas in large institutional living units often send an overwhelming message of order and formality, which induces stress over time.

The educational environment is essential towards a successful reformation of youth offenders. The goal of the educational facility is to provide a positive learning environment, which can evoke the youths' interest in learning. The shape of the classroom and the colors present in the space have significant influence on the quality of learning. Certain colors for example, may be too demotivating yet some colors may become too distracting. Classrooms work best when they are moderately energizing. In terms of shape, rectangular rooms emphasizes

on order and authority, but suppresses creativity, yet "T" shaped or "L" shaped rooms encourages creative thinking and small group works, but are difficult for delivering formal lectures<sup>4</sup>. The study environment is different from living environment because school is not a personal private space; it is shared between people. Therefore occupants are expected to respect each other's will and learn to compromise for each other's convenience. The architecture itself should therefore express a certain extent of formality through form and size. The school building will be a larger building, relatively higher than the housing units, and located further into the site, at the north end.



Plate 4. Prison Layout bird's eye view. Buildings heights and mass reflects their function.

Comparing to other environments, administrative spaces are a lot more restrictive and secure, and requires a strong sense of authority. One indispensable aspect of the detention centre is order and authority. After all, detention centre is a part of the justice system, and is meant to restore order in society. Although this thesis proposal embraces freedom inside the detention centre, and believes inmates can learn better in a stress-free environment, it is not being argued here that detention centres should be authority free. It is true that too much emphasis on authority may induce horror and stress, but no emphasis on authority can result in disorder. Authority does not need to be emphasized in every moment in every environment, but it needs to exist in the inmates minds. Prisons can be without punishment, but can not be without rules.

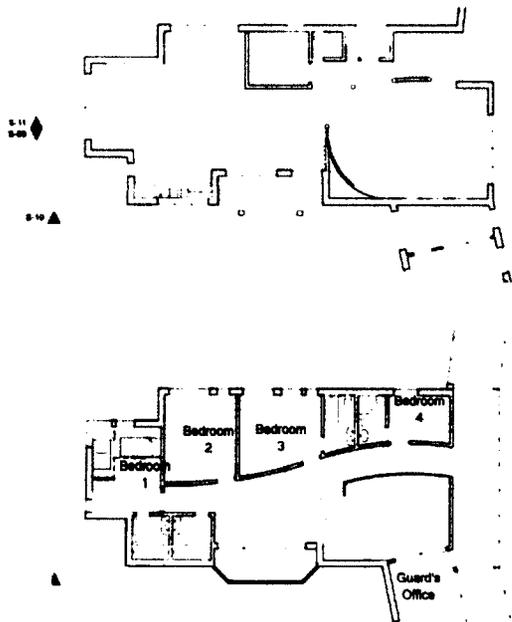
Promoting freedom in detention centre environment does not mean removing all authority, but on the other hand, authority does not necessarily equal punishment and fear. Authority simply means respect. As law and authorities are respected in normal communities outside detention centre, authority should be respected inside the detention centre. In fact any kind of freedom comes with respect for authority and rules, and these youth offenders need to learn to follow the authority and laws. Like a father figure in the family, the architecture of an authoritative facility should evoke a sense of honor and respect, not necessarily to induce fear.

The administrative building are to be recognized as the 'head' of the detention centre, where the rules are set and executed. Upon entering these spaces, the juvenile must be persuaded to behave respectfully. The architecture would be built higher than the other facilities, allowing it to look over the entire detention centre site, and emphasizing the authority and importance of the building. This section of the detention centre is placed at the entrance of the site, guarding the detention centre and controlling any activity with the outside society. The ultimate

<sup>4</sup> Augustin, Sally. "Universal features of well-designed spaces." *Place Advantage: Applied Psychology for Interior Architecture*. Hoboken, NJ: John Wiley & Sons, 2009. p.225. Print.

goal of this detention centre is to rehabilitate youth offenders, to teach them right from wrong, and establishing a positive authoritative figure, meaning not overwhelming to the point of fear, should help the rehabilitation process.

Last but not least, the spaces designed for outdoor activities are very important. This includes not only sports court, but also gardens and landscapes. Being inside any building for a prolonged time can become frustrating. The natural environment has an incredible restorative power on our mental condition<sup>5</sup>. The warm sunlight, the varying shades of green, the fresh air, the smell of soil and grass, the sound of singing birds all have soothing power to release our mental tension. Today, most prisons in North America have only concrete exercise yards without any greenery or landscaping, which could be rather challenging to one's mental wellbeing. In a prison atmosphere, landscaping can be helpful in inducing a mood of calm and repose. It is important that inmates have a view and access to the natural environment. For the outdoor spaces in this design, two major green spaces are introduced. The first one is near the entrance, helping to ease the 'entry shock'; the other is near the middle of the site surrounded by living units. This provides the youth and the guards with a pleasant and calming view of nature from their living space, thus reducing the chance of conflicts. Besides the landscape gardens, two outdoor tennis court and one multipurpose sports court are provided for the youth's daily exercise.



Detailed Example: The Living unit

This juvenile detention centre is designed to house approximately 40 girls in 6 houses, which form smaller community groups encouraging inmates to open themselves and build friendships with others. These houses are two stories high, with bedrooms on the second floor and common spaces, dining room, kitchen, laundry and other facilities on the ground floor. An open corridor on the second floor connects all the houses together, with a guard's office in between every two houses. This gives the guards easy access to all the houses for checking on the youth, and for having regular direct interaction with them. The windows of guard's office overlook into the double height living room of adjacent housing units, with all bedroom doors in sight. This allows the guards to monitor

Plate 5-6. Living Unit floor plan, Top: ground level, Bottom: second level (bedroom level)

5 *ibid.*, p. 31

the inmates' activity easily. Surveillance cameras will be placed in areas not directly visible from the guard's office, such as the kitchen and dining area. Although with today's technology, direct supervision can be entirely replaced with surveillance cameras, which would be more convenient for guards to monitor, but research has shown that both staff and inmates preferred direct supervision <sup>6</sup>. Having regular person to person interaction between guards and inmates helps building a healthy relationship between them. When guards and inmates understand each other better, the rehabilitative work becomes easier and more enjoyable.

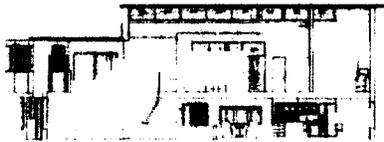


Plate 7. Longitudinal Sections through the living unit

Each house has 4 bedrooms on the second floor, 3 of which are double rooms, and 1 single room for youth who needs special treatment. Having a roommate may be frustrating for most male inmates, but one major difference between women and men is that women are more social and always seeking for emotional bonding. In fact, some inmates prefer double rooms rather than single ones<sup>7</sup>. Although, studies show that single cells have better effects than double cells, but the main reason for that is in traditional double bunk cells, the space per person is less, and the inmates do not have a completely personal space. It is important for the mind to claim ownership of a space, a personalized space that makes an individual feel safe and in control. This place is a reflection of the individual. Such need is innate in us, and we start developing it since the age of five<sup>8</sup>. Even when living with a roommate, it is important to declare boundaries, yet, the traditional double bunking rooms make it extremely difficult to define personal territories. To deal with this issue, a loft-style double room is introduced. The bedrooms are raised to approximately 4 meters in height. A platform is constructed over the bed and desk area on the first level, where less headroom is needed and would benefit from more intimacy. This gives each inmate a space entitled to them, yet the space is still open for conversations and interaction.



Plate 8. Loft-style double bedroom rendering

The bedrooms follow the form of a gently curved corridor, which connects all 4 bedrooms and overlooks the double-height living room on the ground floor. Introducing curvature in the main circulation path of the house is meant to bring comfort and coziness to the space, and reduce aggression among inmates. Studies have found curved forms are more mentally relaxing than straight rigid forms <sup>9</sup>. Rigid rectangular forms are often associated

6 Fairweather, Leslie, and Seán McConville. "Psychological Effects of the Prison Environment." *Prison Architecture*. Oxford: Butterworth-Heinemann, 2000. p.32. Print.

7 *ibid.*, p.38

8 Augustin, Sally. "Universal features of well-designed spaces." *Place Advantage: Applied Psychology for Interior Architecture*. Hoboken, NJ: John Wiley & Sons, 2009. p.30. Print.

9 *ibid.*, p.57.



Plate 9. View from Guard's office rendering



Plate 10. Dining room and Kitchen rendering



Plate 11. Shared communal space on second floor

with muscularity, hardness, coldness, formality, sadness, and rejection, whereas curved forms are often associated with femininity, softness, gentleness, warmth, acceptance, comfort and love. In theory, having a dominant curve visible in shared spaces would lessen the chance of a dispute.

Wood, rubber and carpet floorings are used in the house instead of concrete to give a sense of warmth and to absorb sound. Hearing unwanted noises can bring frustration more easily than the visual environment can. Hearing sound has a biological influence on our body. Our heart beat and respiration synchronize with the rhythms we hear subconsciously and involuntarily<sup>10</sup>. Noise reduction is especially important in personal environments. Research shows that audio privacy, meaning not hearing others and not being heard by others, is more crucial than visual privacy, meaning not seeing others and not being seen by others<sup>11</sup>. Hence, soft materials such as carpet, rubber surfaces, wood, and curtains are purposely chosen to absorb unwanted sound. At the same time, soft materials are associated with acceptance and warmth, which make these living spaces more cozy and welcoming.

The colors of each space in the housing unit also have great impact on the inmates' mood and behavior. Prison cells are often painted all in white, but studies found that our mind can become under-stimulated in a colorless environment, which is just as stressful as being over-stimulated<sup>12</sup>. The brightness, saturation and hue of color all send different messages to our brain. Research shows warm and saturated colors with moderate brightness bring excitement, and cool and less saturated colors with high brightness are calming to the mind. Combinations of cool colors or colors similar in hue are perceived as calming, and combination of warmer colors or colors opposite on a color wheel are perceived as energizing<sup>13</sup>. For bedrooms, a calming color combination is chosen for the walls so inmates can rest. Warmer colors are used in kitchen and dining areas, as it is reviving and known to increase appetite. Combinations of warm and cool colors are used for Living room and common spaces to moderately energize the space.

Large windows are used in living room and dining areas to allow a good amount of sunlight into the room. It is crucial to have natural lighting in a building, because our biological system responds to sunlight,

10 *ibid.*, p.43-46.

11 *ibid.*, p.29.

12 Augustin, Sally. "Emotional and Cognitive Responses To Sensory Information." *Place Advantage: Applied Psychology for Interior Architecture*. Hoboken, NJ: John Wiley & Sons, 2009. p.48-55. Print.

13 *ibid.*, p49

which regulates our circadian rhythm and helps us to relieve from stress<sup>14</sup>. Sunlight is unique because it is constantly changing in intensity, position and color-temperature throughout the day. It cannot be replaced by full-spectrum bulbs. People need to be exposed to sunlight. Besides letting in the sun, these windows also provide a scenic view to the shared landscape garden, which is also mentally refreshing.

When young girls are brought into the detention centre, they are often overwhelmed with shame, anger, fear, stress and other extreme emotions. Many of these girls have a background of being mistreated. They are often more closed off emotionally than other youth because of their personal history. The goal of the living units is to give comfort, ease their stress and help the youth restore their self-esteem. At the same time, the units have to be easy to supervise. This design aims to achieve the goal by giving extra attention to the detail in circulation, material and color choice, lighting, and interior layout, because these details are more immediate to the users, and the details that tell the story of a space.

Although the architectural space has significant influence on the emotional wellbeing of inmates, which in turn affects their attitude and behavior, the architecture alone cannot rehabilitate. It only enhances the rehabilitation programs in the detention centre. Detention centre programs are crucial, and all the effort in architectural design would become meaningless if the envisioned programs do not occur. It is important to note that both physical and mental wellbeing are essential to the rehabilitation of youth offenders. Besides learning knowledge and skills, they also need to learn a healthy lifestyle, and need to stay fit. Programs should be designed according to inmates' needs, and architecture should be designed to enhance these programs.

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14      *ibid.*, p.63.

## THE PROGRAM

### Academic programs

Academic education is a major need among these youth. They are school-age youth, yet they are taken out of the school environment. Most of these youth are not academic achievers, and when they return to their community after sentence, they will be academically behind, which may result in a loss of interest in learning. It is a vicious cycle they risk entering, because their future achievement would be affected by not having a good education. Today, many juvenile detention centres have realized this problem, and have introduced educational programs with public school boards. This program offers middle school and high school classes to the youth, and they can obtain school credits while studying in detention centre. Teachers will be hired by the detention centre administration to focus on youth of such background, giving them more personal attentions than they can receive in public schools. This program not only keeps them academically on track with the school board, but also helps them to develop their confidence and interest in academic learning. These programs are not limited to literature, mathematics and science subjects, but also include music, art and performance programs with the aim to widen their interest and develop their talents. In the future, occasional visits to the Technology museum may be arranged with the museum facility to better motivate the youth to learn.

### Rehabilitative programs

These youth all have their own issue that led them to detention centre, may that be addiction, temper or simply making wrong decisions. One major objective of juvenile detention centres is to help inmates overcome these issues and prevent them from making the same mistake after returning home. The rehabilitative programs include problem solving courses, anger management workshops, positive decision making workshops, as well as a newly introduced meet-a-victim program, which has shown promising results in the William E. Hay Youth Detention Center in Ottawa. This program allows the youth offender to meet a victim, not necessarily their victim, and hear their experiences. Many youth that committed offences such as break-in or theft did not understand the negative mental impact their action had on the victims. This program builds a personal interaction between them, which helps the youth to understand the pains of the victims and re-evaluate his or her actions, and may also help the victim to forgive the offenders for their negligent act. Also, regular counseling will be provided to the youth to evaluate their progress.

#### Physical health programs

The physical health of the youth offenders is an important factor for rehabilitative success. Exercise can relieve stress and a healthy physical condition also contributes to a positive attitude in life. On this site, two tennis courts and a multipurpose outdoor basketball court are provided, as well as an indoor fitness room for both youth and staff. The youth will be offered regular training classes, and occasional sports tournaments can be held to better involve the youth offenders.

#### Community reintegration programs

Community reintegration is the eventual goal of youth detention centres. Reconnecting the youth with a positive society group is an important step to prevent them from going back to the old route. Often for boy juveniles, such program can be technical and physical labors, which are easier to find in a community. However a different type of community reintegration program has to be arranged for girls. Based on the condition and interest of the youth, volunteer opportunities could be arranged, such as craft making for charitable foundations, pet training and supporting the Mission Kitchen for homeless. Community reintegration program can start on site, and if good results are seen in the future, youth could be arranged to serve in communities under supervision, such as volunteering at care homes and hospitals. In fact, a major reason for the choice of this site was the rich possibilities for future programs. The proximity to a number of hospitals, care centers and church may provide such opportunities.

The detention centre programs are designed for the youth's needs, because the objective is to propose a new lifestyle to them and help them to succeed. The academic programs, rehabilitative programs, physical health programs and the community integration programs all works towards the same goal. The architecture of the detention centre is to enhance this objective by providing youth and the staff with the appropriate environment for each facility. It is important that the architecture and the program send out a congruent message to the inmates. The success of a detention centre does not depend on either the program or the architecture, but having both of them working together.

## CONCLUSION

Prison design has always been a challenging yet unavoidable issue in society. The purpose of prison has evolved from a detention place for execution to a punishment, then to the reformation of offenders. The layout of prisons has changed from the rectangular layout in the 16th century to the campus layout in the 21st century. Many designs have been tried over centuries, yet the problem have not been resolved. One major problem with the traditional prison design was the enormous mental pressure prisons often put on inmates and guards. The harsh concrete walls, the monotone spaces, and the straight long halls that echoes every step can be mentally stressing according to psychological research. Such overwhelming mental stress evokes violent and emotional behaviors in prison, which defies the whole purpose of rehabilitation.

All architectural spaces have hidden powers, which influence people's mental state as they walk into them. The power lies in the details of the architectural design, including choosing the appropriate colors, material, and lighting for the specific function in the space, using the appropriate ceiling height, form and scale for the space, scenting the space with the right fragrance, sound controlling in the space, and much more. These little details that are perceived subconsciously affect our attitude and mood in a space. Neglecting the importance of these matters is often the reason behind dysfunctional architectures, which may be the reason our prisons don't work as they should. This thesis is a proposal for a different approach towards prison design, with the focus on inmate's sensory experiences and the mental impact of the spaces, in hope to enhance the rehabilitation process.

## LIST OF FIGURES

Fig. 1.	Pierrefonds Château, France. Eugène Emmanuel Viollet-le-Duc, <i>Dictionnaire Raisoné de l'architecture Française du onzième au seizième siècle</i> , vol.7(n.d.), 481.	5
Fig. 2.	Youth House of correction, Hospice of San Michele, Rome, 1705. Top: plan, John Howard, <i>State of the Prisons</i> , 3rd ed.(1784) Bottom: elevation, Domenico del Rossi, <i>Studio d'architettura</i> (1721), vol.3, plate 56. By permission of the British Library: 60.l.7.	7
Fig. 3.	Maison de Force, Ghent, Belgium. 1773. < <a href="http://www.sheldensays.com/architectural_and_disciplinary_i.htm">http://www.sheldensays.com/architectural_and_disciplinary_i.htm</a> >	7
Fig. 4.	A 1791 version of Jeremy Bentham's Panopticon proposal. John Bowring, ed., <i>Works of Jeremy Bentham</i> (1843), vol.4, opposite 172.	8
Fig. 5.	Interior of panopticon cellhouse, Isle of Pines, "The Perfect Prison," <i>Illustrated London News</i> (Feb. 13, 1932). <i>Illustrated London News Picture Library</i> .	8
Fig. 6.	Blackburn's Suffolk County Jail, Ipswich, England, 1784-1790.	9
Fig. 7.	Haviland's Eastern Penitentiary, Philadelphia, 1821-1836	9
Fig. 8.	Eastern State Penitentiary (Cherry Hill), Philadelphia, 1821. Plan as completed in 1836. Fre2de2ric-Auguste Demetz and Guillaume Abel Blouet, <i>Rapport</i> (1837), part 2, plate 23, opposite 61. Courtesy of the Library Company of Philadelphia.	10
Fig. 9.	Ohio Correctional Institution, Marion, opened 1955	11
Fig. 10.	Telephone Pole Organization, <i>Prison and Jail Administration: Practice and Theory</i> , by Peter M. Carlson and Judith Simon Garrett, (Sudbury, MA: Jones and Bartlett Publishers, 2007) p.46	11
Fig. 11.	Prison Layout Diagrams, photo courtesy of Tocarra McConnell, < <a href="http://voices.yahoo.com/image/37867/index.html?cat=30">http://voices.yahoo.com/image/37867/index.html?cat=30</a> >	11
Fig. 12-14.	Justice and Detention Center in Leoben, Austria. photo courtesy of " <a href="http://www.readn-rock.com/?p=22">http://www.readn-rock.com/?p=22</a> "	13
Fig. 15-17.	Halden Fengsel Prison, Norway. photo courtesy of " <a href="http://alexmasi.photoshelter.com/gallery/--/G0000.pWT7uxO5qE/">http://alexmasi.photoshelter.com/gallery/--/G0000.pWT7uxO5qE/</a> "	14
Fig. 18.	Bastoy Prison Island, Norway. photo courtesy of Bastøy prison "www.bastoyfengsel.no/English"	14
Fig. 19-21.	Bastoy Prison Island, Norway. photo courtesy of Marco Di Lauro/ Getty, Mail Online, < <a href="http://www.dailymail.co.uk/home/moslive/article-1384308/Norways-controversial-cushy-prison-experiment--catch-UK.html">http://www.dailymail.co.uk/home/moslive/article-1384308/Norways-controversial-cushy-prison-experiment--catch-UK.html</a> >	15
Fig. 22.	Site photo, St Laurent and Innes Rd, Ottawa, 30 January 2012. Personal photograph by author. JPËG file	19

**LIST OF PLATES**  
**DRAWN BY AUTHOR**

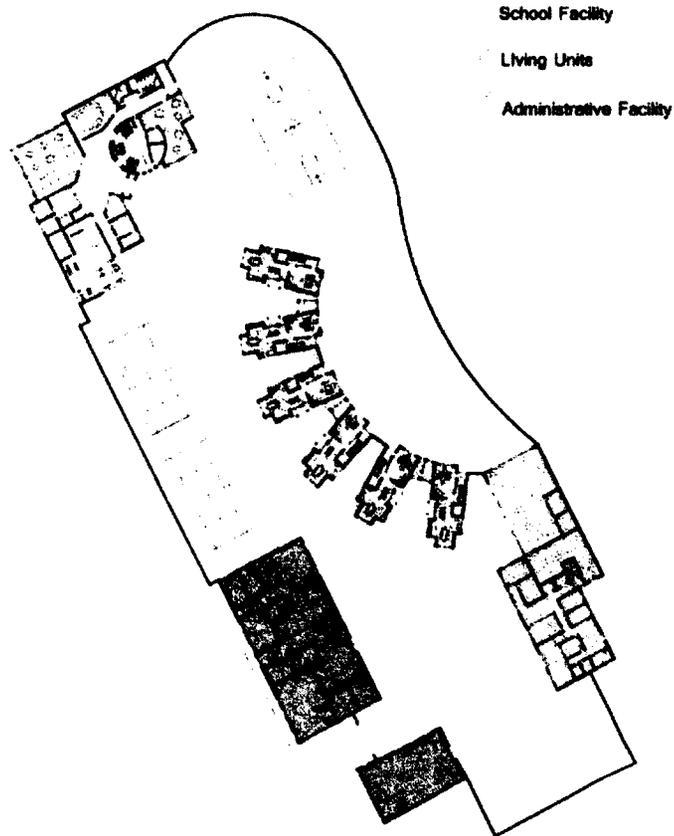
<b>Plate 1.</b>	<b>Key plan, Indicating neighboring Communities</b>	<b>19</b>
<b>Plate 2.</b>	<b>Key plan, Indicating Canada Science and Technology Museum</b>	<b>19</b>
<b>Plate 3.</b>	<b>Prison Layout, Buildings are organized by function, forming zones for different purposes.</b>	<b>21</b>
<b>Plate 4.</b>	<b>Prison Layout bird's eye view, Buildings heights and mass reflects their function.</b>	<b>22</b>
<b>Plate 5.</b>	<b>Living Unit floor plan, ground level, showing living room, kitchen, dining room and utilities</b>	<b>23</b>
<b>Plate 6.</b>	<b>Living Unit floor plan, second level, showing 4 bedrooms, bathrooms and common space</b>	<b>23</b>
<b>Plate 7.</b>	<b>Longitudinal Section through the living unit</b>	<b>23</b>
<b>Plate 8.</b>	<b>Loft-style double bedroom rendering, providing youth offenders with their personal space.</b>	<b>24</b>
<b>Plate 9.</b>	<b>View from Guard's office rendering, all bedroom doors are visible from the guard's office</b>	<b>24</b>
<b>Plate 10.</b>	<b>Dining room and Kitchen rendering, showing the use of material and color</b>	<b>25</b>
<b>Plate 11.</b>	<b>Shared communal space on second floor, showing the use of material and color</b>	<b>25</b>

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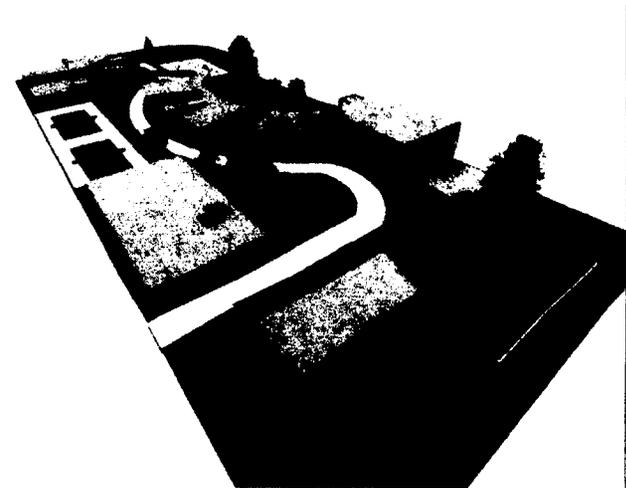
# DRAWINGS ENLARGED



Prison Layout, Buildings are organized by function, forming zones for different purposes.

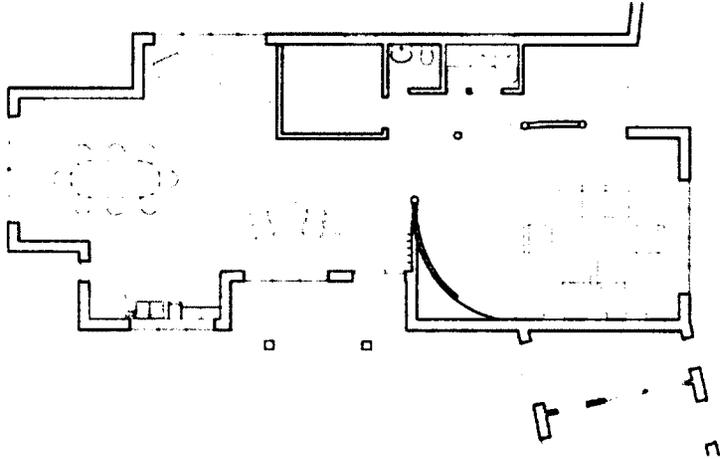


Site Plan

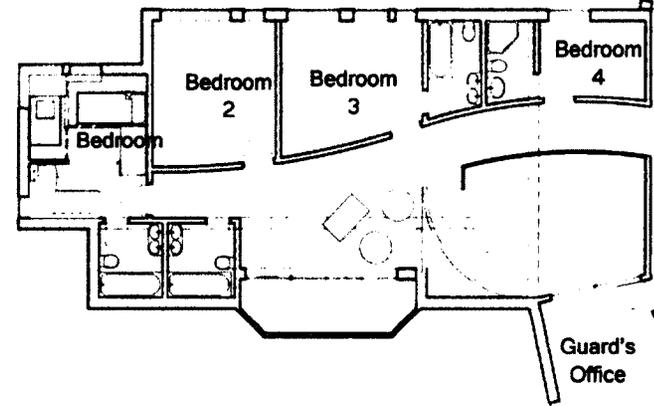


Prison Layout, Bird's view

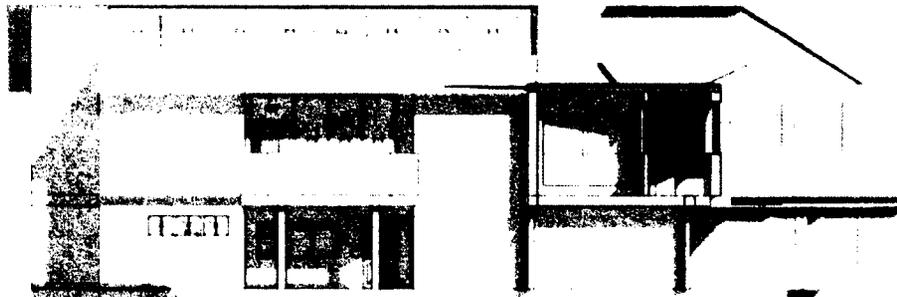
# DRAWINGS ENLARGED - LIVING UNIT



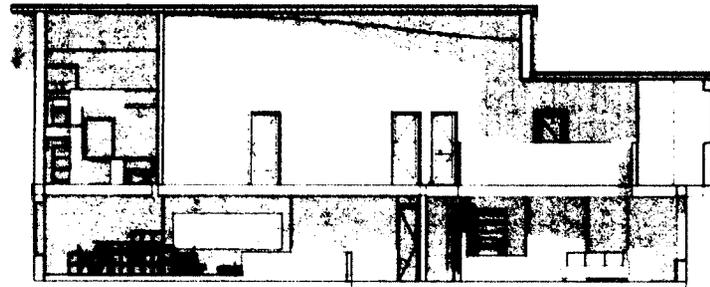
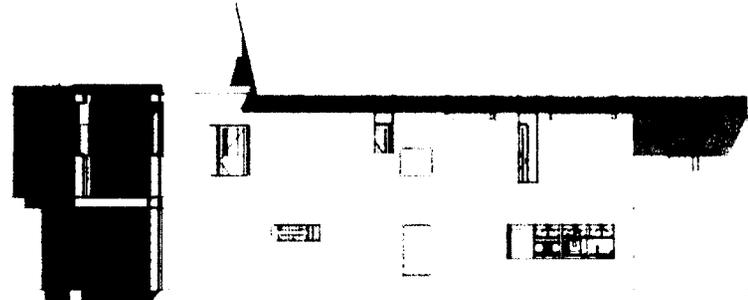
Living Unit floor plan - ground level



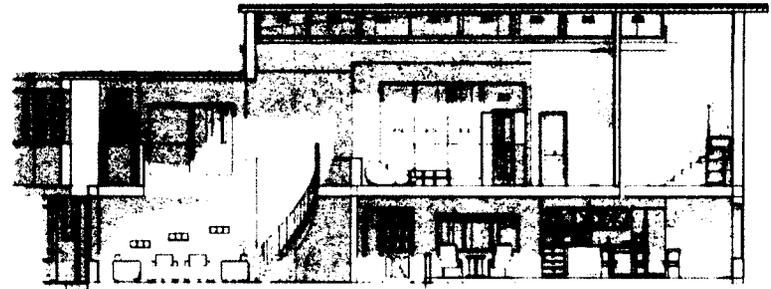
Living Unit floor plan - second level (bedroom level)



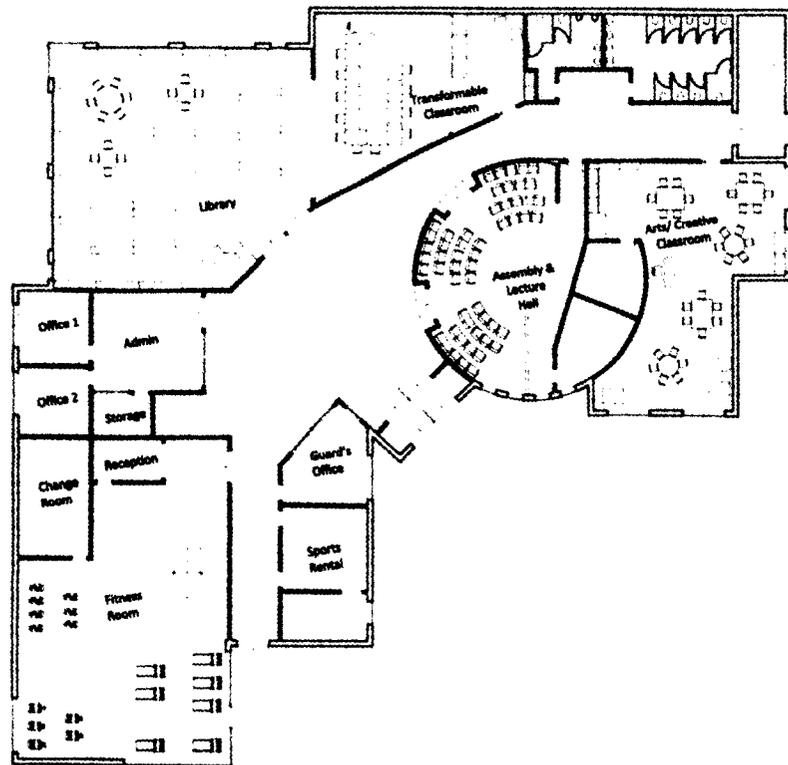
Living Unit Elevations



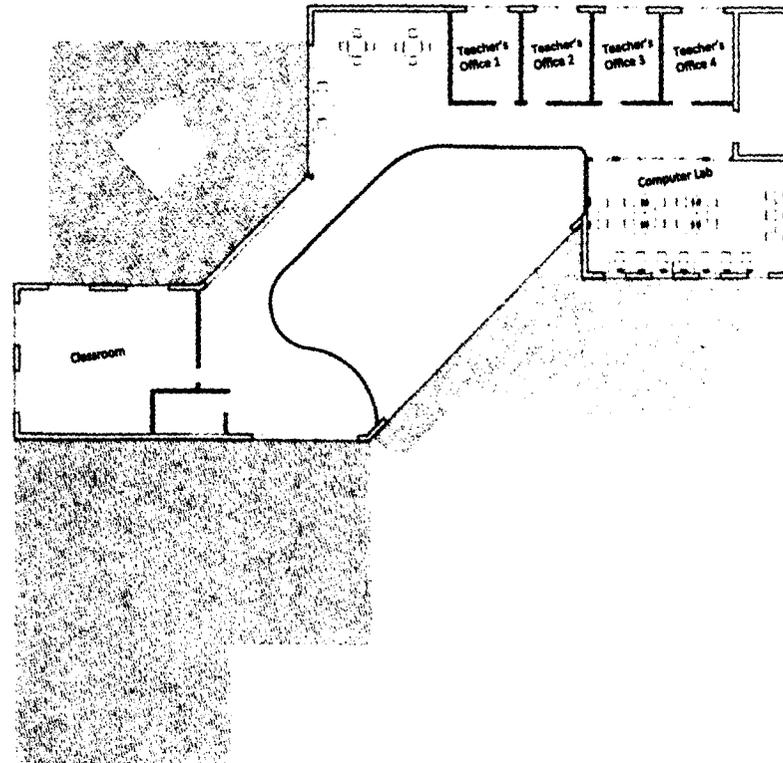
Longitudinal Sections through the living unit



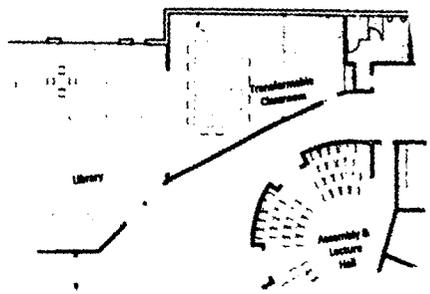
# DRAWINGS ENLARGED - SCHOOL



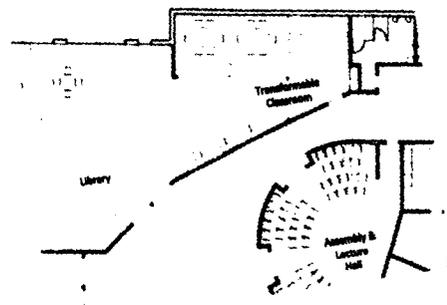
School - Ground Floor



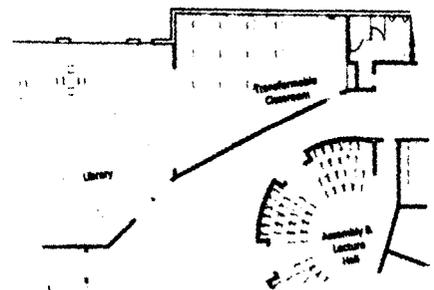
School - Second Floor



Possible Arrangements for Convertible Classroom  
1. Seminar room + Private meeting room



2. Study group rooms + Private meeting Room



3. Classroom/ Exam room

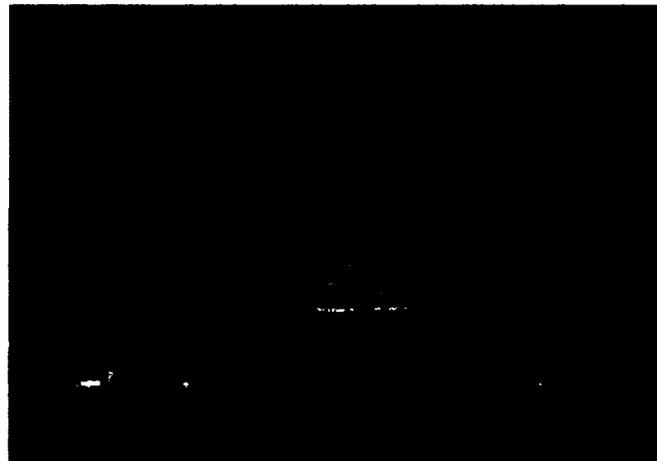
APPENDIX A  
JUVENILE PRISON RESEARCH  
WILLIAM E. HAY CENTRE

William E. Hay Centre is a juvenile detention centre for boys, located in Ottawa, Ontario. It was recently expanded in 2009. This detention centre houses 40 male youth and young adults who are charged with a criminal offense between the ages of 12 and 18 under the Youth Criminal Justice Act. This is a new generation prison with the focus of rehabilitation of inmates, and pays attention to both the physical and emotional wellbeing of the youth offenders. The program designed for this prison focuses on education, allowing youth to attain high school diploma while studying in prison, and community reintegration, giving them the opportunity to work for community and learn hands-on skills. The architecture is starting to reflect this idea of prison not as a punitive facility but as a rehabilitation and learning centre, although there are still some issues remaining in the details of the design.

One major aim for the design was to depart from the monumental image of prison designs, and make the juvenile prison look harmonious to the surroundings. The inspiration was community churches and day cares. Instead of having one large building, inmates are separated into several small buildings, which are not much bigger than normal houses. These buildings are connected to each other centering a sports field, to minimize the use of wall enclosure, which may convey the idea of imprisonment. The look of these "houses" resemble community churches and day care centres, with the pitched roof, glass windows, and the warm-color brick walls. Much effort was made to ensure the exterior of the building looked fitting with the surrounding community and avoid alienation.



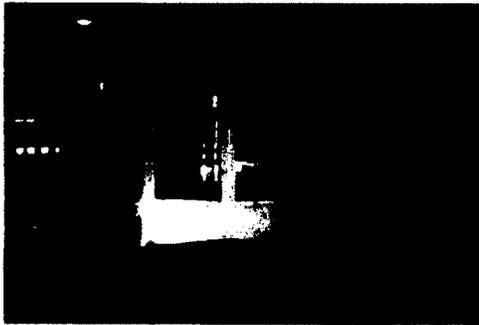
Bird's View of William E. Hay Centre, Ottawa



Entrance View of William E. Hay Centre, Ottawa



Courtyard View of William E. Hay Centre, Ottawa



Interior View of William E. Hay Centre, Ottawa

The interior of the prison was built to imitate the environment of a public school. Metal bars are replaced by glass windows, and the spaces look open and bright. However, the excessive use of tiles on the floor and walls really exaggerates the institutional feeling. The timid use of colors in the interior environment also gives a heavy feeling to the space, almost straying away from the warm and cheerful look of the exterior impression. This impression of formality may be appropriate from educational environments, such as classrooms, libraries, but it may induce anxiety and stress when used excessively in the living environment. As a living environment, it lacks intimacy and comfort. The attempt to distinguish different environments through building style and material is not apparent in this design.



Cafeteria

William E. Hay Centre is a good start in this concept, and it has had some success in enhancing the rehabilitative programs, but there is still much room for improvement. The idea of building small, house-like units became the major inspiration for the living units in this design thesis.



TV Lounge



Visitor Hall



Inmate bedroom



Inmate bedroom

## APPENDIX B DESIGN KEY CONCEPTS

- It is important for inmates' mental health to live in diverse environments. The first aim is to separate detention centre facilities into different environments base on the function, and use the architecture to distinguish each environment and to reflect its function.

Implementation: facilities are separated into 4 zones: residence, school, administration, outdoor sports and garden. The architecture for residence is a series of small 'houses', with only 2 levels in height to emphasize intimacy. The architecture for school is a also a lower-rise, but massive in plan, to create a grand but not oppressive atmosphere. The architecture for administration building is a medium-rise building of 4 levels, overing looking the entire site, and emphasizing the authority it stands. (refer to page 21-22)

- Inmate should be in smaller community groups to prevent dissociations, which is common in the detention centre environments.

Implementation: Instead of a massive storage-style housing, residence buildings are designed as a chain of smaller houses, housing only 7-8 people in a family-style environment.(refer to page 21)

- Inmates should be encouraged to walk outdoors, because the sunlight and air naturally refreshes us and gives us positive energy.

Implementation: Each environments are located apart from each other, with school located at the north end next to the road, residence buildings in the center of the site, and administrative building near the entrance. Gardens and sport fields are integrated between the different zones, encouraging the inmates to spend time outdoors. (refer to page 23)

## LIVING UNIT DESIGN

### FORM

- **Architecture of the living units should give a personal and intimate feeling to the residences, therefore should be small in scale. The living units should resemble real home conditions as much as possible to provide a familiar and relaxing environment for youth offenders.**

**Implementation: Each housing unit is 18m long by 8m wide, the size of an average house, All private spaces such as bedrooms are on the second floor, and common spaces such as the living room, kitchen, and dining area are on the ground floor. (refer to page 23)**

- **Building a sense of community is important, people has an innate need to socialize.**

**Implementation: Instead of treating individual cell rooms as a unit of inspection, a 'house' is used as a unit, housing 7-8 inmates. All 'houses' are connected to a corridor which allows guards to easily access and supervise each unit. (refer to page 23)**

- **Past studies had shown that identical cell rooms contribute to the fading-away of inmates identity as unique individuals. Each bedroom should be unique but equally comfortable. Incorporating a gently curved wall can give a unique touch to the rooms, while bringing a soothing impression to the eye.**

**Implementation: The pathway on the second floor is a gentle S-curve, with 4 bedrooms lined up uniquely along one side of it. Opposite to the bedrooms is a common lounge space with balcony on the second floor, and a section open to the living room below. (refer to page 24-25)**

- **Providing easy supervision for the guards is essential in keeping the detention centre safe and secure, including private living units. However, supervision in living units should be settle and non-intrusive.**

**Implementation: Guard's office are placed on the second floor in between two houses, with a large window looking over the living space and monitoring all bedroom accesses. The living room is double-height, acting as a spacial relief and celebrated center in the house, which opens up the view of the second floor for the guards. The guards would not need to wander into the house to supervise youth offenders. (refer to page 24-25)**

- Roommates are beneficial to youth offenders, especially girls, which encourages them to build close friendships and become more open. However, each youth must have a defined personal space to reduce anxiety and dispute.

Implementation: Open loft design provides personal spaces and privacy for both inmates, while keeping the space open for conversations. Double bedrooms are 4 meters high. A platform is built above the bed and desk areas of the first inmate, and becomes the personal space for the second inmate. (refer to page 24)

## MATERIALS

- Unwanted sound in a space can induce anxiety easier than visual stimulation, and the choice of material is the key in noise reduction.

Implementation: Carpets are used for the double height living room and entire second floor to reduce walking noise and bring warmth to these intimate spaces. (refer to page 25)

- Material must be suitable for the specific function of the space. The inconvenience of using and maintaining a space is also a resource for stress.

Implementation: Wood and rubber floorings are used for kitchen, dining room and other shared areas on the ground floor, for easy cleaning and replacement. (refer to page 25 images)

## COLORS

- Colors have a direct influence on people's mood. Warm and saturated colors bring excitement and often increases appetite; cool, less saturated and bright colors relaxes us, and hints people to handle problems calmly.
- Bedrooms needs to be relaxing, therefore should be painted dominantly in bright, less saturated cool colors.

Implementation: Bedroom walls are painted in baby blue and light pistachio green to create a soothing atmosphere in the bedroom. Natural wood color of furniture and the loft brings warmth to the space. (refer to page 25)

- Dining room on the other hand needs to be exciting and raises appetite, therefore, warm and more saturated color combinations should used.

Implementation: Dining room walls are painted in corn yellow, with 2 minor walls in carrot orange to bring a delightful sensation, and boost the appetite. (refer to page 25)

- Living room in comparison should be moderately energizing, but not overly stimulating.

Implementation: A dominant color combination of light yellow and pistachio green is chosen for the walls to brighten up the room. Hints of red and light brown comes from the sofa, wood stairs, coffee table and carpet brings a warm and cheerful touch. (refer to page 25)