Penjara Pudu: Demolished Prison of Dark Recollections

Izzul Hafiy Rosli, Roslina Abdul Latif

Taylors University, Malaysia

Abstract: **Penjara Pudu is one of the oldest buildings in Malaysia. If still standing, Pudu Prison or also known as Pudu Jail would have been 130 years old as of this year (2021). The historic building last held incarcerated individuals in 2007, was demolished in 2012 and was never declared a national heritage site. The purpose of the 3D Modelling is to let society know how Penjara Pudu looked like during its abandoned years after 2012 by using a video walkthrough covering the exterior only. In this study, the texture for the remodel used a displacement map to get more in depth of the textures used. Next, for the lighting, the sky dometesting proved to be the most suitable light to be used in this project. For the rendering process, offline rendering was used to produce the realism of the images in the highest standard. The remaining structure of Penjara Pudu has been captured throughout the site visit which was carried out on the 11th of March 2020. The design and analysis for this 3D mock-up prototype of the whole exterior structure was recreated using polygons and Maya software. By the end of this project, society can now see how Penjara Pudu looked like during its abandoned stage and simultaneously increase their acknowledgement to support our heritage, no matter how dark the recollections.**

Keywords: **Penjara Pudu, Pudu Jail, history, remodel, abandoned, texture, polygons, heritage**

I. INTRODUCTION

PenjaraPudu is not an uncommon site among Malaysians. Built in 1891by the British administration of Malaya, it took four years to complete. Penjara Pudu also known as Pudu Jail, was built on the site of a former Chinese burial ground. It is located at the heart of Kuala Lumpur and was home to rapists and killers. Pudu became a brooding symbol of British power, and an even harsher system of justice. In August 1895, an outbreak of cholera swept through Penjara Pudu. The prisoners were quarantined but left to die in their cells. The unstoppable epidemic that killed hundreds was caused by the contaminated water supply. It took three years for the outbreak to clear(Ismail, 2014).

Penjara Pudu also had solitary confinement cells. The cellswere tiny, dark, and putrid. Only the toughest of the tough could hold their sanity here. The prisoner's day started at 10 o'clock on the day where they worked as tailors, cobblers and at the dhobi, but at night the prison came alive with activities. Secret deals were made via 'night shooters', where the prisoners would share information with other inmates by using what they called a blowpipe or in Malay 'sumpit' made from rolled-up newspaper and shoot paper bullets with messages (Inishah, 2011). After functioning for more than 100 years, Penjara Pudu was formally closed in 1996 and abandoned until 2009 till the government decided to demolish the building for future development.

There were several reasons for this. First, the Malaysian present legislation on historic buildings was the main threat to Penjara Pudu's existence. This, coupled with the pressure of high real estate value estimated to be RM 300 million worth. This amount pressured the stakeholders to develop the site for commercial development. UDA Holdings Berhad proposed to develop aRM 2 billion Bukit Bintang City Centre due to start in 2006 and completed within five years in 2011. Next, the surrounding development of Penjara Pudu was not suitable due to its location in the middle of Kuala Lumpur. The greenhouse effect gases such as carbon dioxide led to acid rain and therefore damaged the walls of the abandoned building further. The structure was also predicted to slightly move because of the vibration caused by the nearby train and construction works.

To top it all off, poor maintenance and upgrading work was neglected. The art mural was peeling off badly due to lack of supervision. The steel bars from the prison were stolen by thieving scrap metal traders. This was a huge loss as the steel bars were important features of the prison's characteristics. The lack of public awareness and the inability of recognizing the building as a heritage brought on debates of whether to keep or demolish the building for future expansion. Due to poor conservation awareness, the government decided to demolish the building (Azhar, 2020).

The city had become a space to be ordered, regulated and configured through managing the interplay of territory and infrastructures, "what was discovered at that time was the idea of society" (Foucault, 1984) and what was deemed important to them. There were three key features that characterised most cases of these infrastructures (Graham and Marvin, 2001, pp77-81), as was the case with Penjara Pudu.

Firstly, there was a broad consensus that the infracfucture through which services were distributed were most effectively managed through "natural monopolies". In extension, a publicly regulated monopoly was able to benefit from economies of scale by developing one infrasfucture whereas a fragmented industry was likely to lead to duplication of costs, especially in terms of maintenance.

Secondly, infrastructures were largely considered to be public goods, which made them difficult to be distributed within private markets. And as public goods, this infrastructure was under state control and they had the power to dispose of it how they saw fit.

Thirdly, the infrastructure was seen to produce externality effects on the environment and/or particular social groups. Once again, state regulation was needed to manage these externalities to ensure the wider social, economic and environmental objectives were met. These key features dominated the infrastructural ideal of integrated, standardized city and provided the underlying rational for "a moral and practical social system" (Taylor, 1994, pp 156). Infrastructures became an essential focus of power to legitimize and define the modern city (Jessop, 2000) and that is exactly what happened to the site where Penjara Pudu sat on. Given all these reasons, Penjara Pudu was more valuable to be developed versus being saved as a heritage location.

The city became a space to be ordered, regulated and configured through managing the interplay of territory and infrastructures; "what was discovered at that time was the idea of society" (Foucault, 1984, pp.242, emphasis in original).

Although there were substantial national and local variations in the specific technological and social organization of infrastructure providers there were three key features that characterized most cases (Graham and Marvin, 2001, pp.77-81).

Firstly, there was broad consensus that infrastructures through which services were distributed were most effectively managed through "natural monopolies". That is, a single supplier was considered to be more efficient than several suppliers in any particular area. In extension, a publicly regulated monopoly was able to benefit from economies of scale by developing one infrastructure whereas a fragmented industry was likely to lead to duplication of costs.

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Penjara Pudu was closed for several years following the 1986 execution of Kevin Barlow and Brain Chambers, both Australian nationals, for drug trafficking. However in early 2004, it was reopened just for a short time as a museum. Those who have visited it described the prison as totally horrific (Wilayah, 2009).

Society never got a chance to see what the interior of Penjara Pudu looked like even when it was abandoned. One of the main reasons was because Penjara Pudu was an abandoned building that had stood for more than 100 years, and the cost to modify and sustain the building was high. The government was unwilling to spend a large amount of money to restore a building that was not considered a heritage. The prisoners and staff were transferred to a new facility in Sungai Buloh, resulting in zero residents. Lack of proper maintenance was also the main reason for the abandonment. The prison's location, after a century, changed drastically to be one of the busiest locations in Malaysia.

In this study, the structure of Penjara Pudu was remodeled using the 3D modelling method. It provides 3D graphics, so people can visualize clearly and see how it looked like when it was abandoned. Society would be able to feel the "realness" of the environment. The objective of this study was three-fold as stated below:

i.   To analyze and recapture the unique architecture design of the abandoned Penjara Pudu.
ii. To create and design a 3D model of the abandoned Penjara Pudu to the closest detail.
iii. To show the outer view of the abandoned Penjara Pudu through a video walkthrough.

II. LITERATURE REVIEW

A prison is a place of confinement especially for lawbreakers, rapists, killers etc for either males or females. Prisons have four major purposes which are retribution, incapacitation, deterrence, and rehabilitation. Retribution is

punishment for crimes against society, depriving criminals of their freedom as a way of making them pay a debt to society for their crimes. Incapacitation refers to the removal of criminals from society so that they can no longer harm innocent people. Deterrence is the prevention of future crime as it is hoped that prisons provide warnings to people thinking about committing crimes and that the possibility of going to prison will discourage people from breaking the law. Rehabilitation describes activities designed to change criminals into law-abiding citizens and may include providing educational courses in prison, such as teaching job skills and offering counselling with a psychologist or social worker(The Purpose of Punishment, n.d.).

2.1 Background of Penjara Pudu

Figure 0.1: The abandoned Penjara Pudu's main gate.

Penjara Pudu was one of the oldest buildings in Malaysia and was located at the junction of Hang Tuah Road and Pudu Road. Built between 1891 and 1895 by the British colonial government, it took four years to completed. This historical landmark that sprawled over 7.8 hectareswas designed by Charles Edwin Spooner, the state engineer and director of the Public Works Department to fit 950 inmates. At a cost of RM 138 000, the prison was built in six phases using steel, brick, and cement, all imported from British colonies(Isa, 2006). Built at a jungle clearance called Pudu Village in the southeast of old Kuala Lumpur, the prison's location seemed ideal at that time.

It was conveniently close to the city but not close enough to be a threat. Surrounding the prison walls were rows of shop-houses and residential areas for police and prison officers. The main structure of the prison was the cell block built in the shape of St. Andrew's cross that is based on its flag, a three-story stone and concrete building housing cells. One cell

consists with the dimension of 8 feet by 10 feet held six prisoners. The common cell which had three floors was divided into five sub-blocks: Block A, B1, C2, D3, and E4. Block F was for isolation while block G was for women prisoners. On the outside, the cell blocks were surrounded by a narrow courtyard where the inmates planted sweet potatoes. This was also where whippings took place. The courtyard was a gathering space that served lighting and ventilation purposes (Isa, 2006). The main gate has two tower domes and a two-story building, the administrative block which separated the kitchen and the women block, and on the east side of the prison was the hospital.

Figure 0.2: Flag of St.Andrew's

Like most prisons, this prison also had its share of hostage taking. On October 17, 1986, Dr. Radzibin Jaafar, a skin specialist from Universiti Kebangsaan Malaysia (UKM) and his laboratory technician, Mr. Abdul Azizi bin Abdul Majid was preparing to do a medical check-upat the prison. Without warning, six prisoners rushed into the clinic and held them with improvised weapons. The ringleader was Chua Chap Seng aka Jimmy Chu and his five gang members, Ng Lai Huat, Sin Ah Lau, Yap Chee Keong, Phang Boon and Lam Hock Sung. Chua demanded a getaway vehicle and cash from the police while threatening to kill the two hostages (Sim, J. 2016).The Police Commissioner at the time, Dato' Zaman Khan refused the demands. The police filled food with drugs to knock them out. No blood was shed, and the two hostages were saved.

2.2 Graffiti

Figure 0.3: Graffiti of the abandoned Penjara Pudu (Isa, 2006).

In 1984, an inmate named Khong Yen Chong started painting the walls of Penjara Pudu with a couple of other inmates (Isa, 2006). They create an impressive tropical mural. It measured 860 feet by14 feet and was mention in the World Guinness Book of records as the longest mural in the world. Khong could not finish the mural in time before his release but he returned later as a free man and volunteered his time to complete his masterpiece. Khong used some 2,000 litres of paint to create an impressive mural of tropical scenes.

2.3 Structure

Figure 0.4: The sub main entrance of the abandoned Penjara Pudu.

Figure 0.5: Gate to the abandoned Penjara Pudu.

Figure 0.6: Path of the abandoned Penjara Pudu.

Figure 0.7: Old structures of abandoned Penjara Pudu.

Figure 0.8: Top left view of the abandoned Penjara Pudu.

Figure 0.9: Back section of the abandoned Penjara Pudu.

Figure 0.10: Middle path of the abandoned Penjara Pudu.
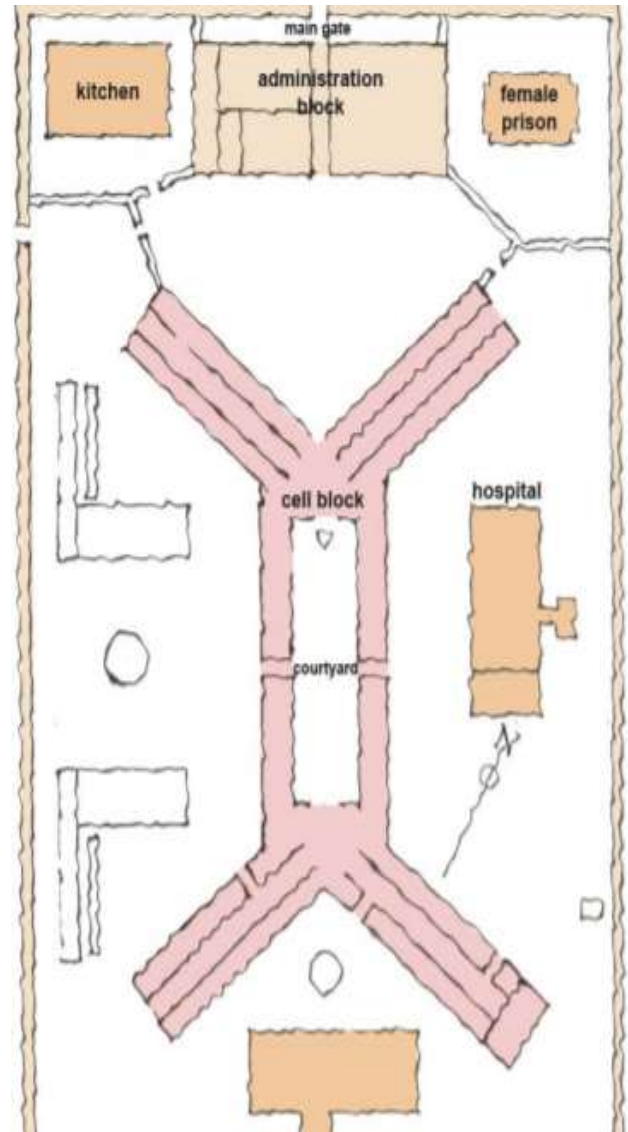
Figure 0.11: The early sketch of the abandoned Penjara Pudu (Isa, 2006).

The rooftop of the watchtower was built with an edgy pointed roof style called Minangkabau.

Figure 0.12: Minangkabau style (Isa, 2006)
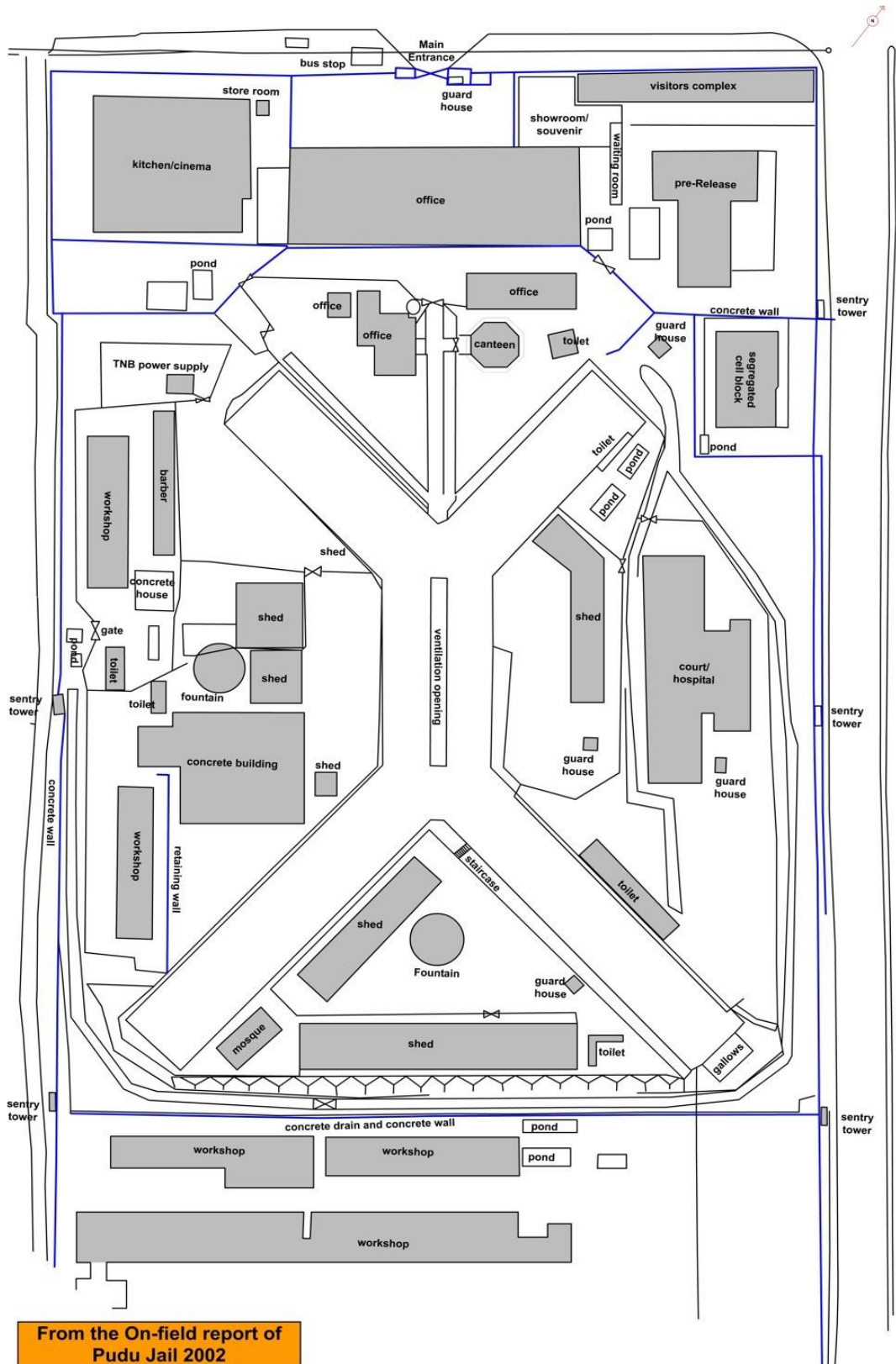
Figure 0.13: Plan and zoning for the abandoned Penjara Pudu (Ismail, 2014.)

block A | local [Malay / Indians / pre-Release]
block B | local [Chinese / Malay / Indians]
block C | foreigners
block D | death row (level G) / juvenile (Level 1&2)
block E | HIV+ / insane / health problems
block F | HIV+ / insane / health problems
block G | isolation block [women's cells]
block H | pre-Release
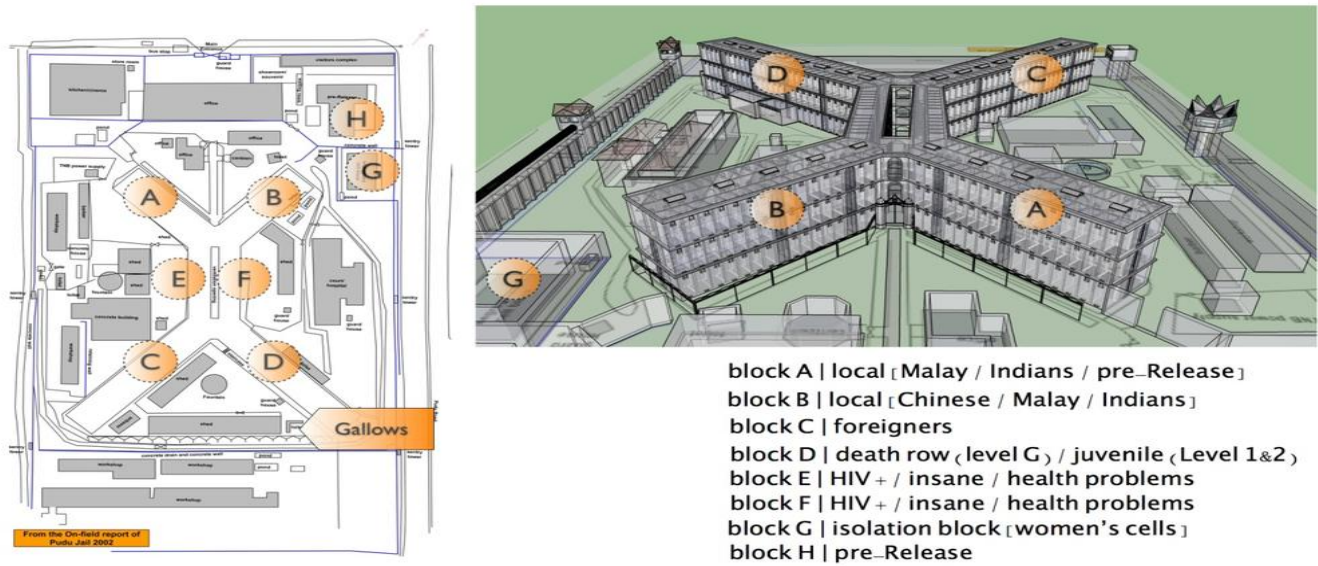
Figure 0.14: the 3D modelling of the abandoned Penjara Pudu (Ismail,2014.).

III. METHODOLOGY

3.1 3D Modelling Technique

In 3D modelling, there are three stages of production - pre-production, production, and post-production. This project pipeline plays different roles and tasks. For instance, the building and the blueprint sketch needs to be clarified and analysed in pre-production before going to the next phase. Production is where the modelling will take place. And lastly, post-production is where the final object will come together to give it a realistic and believable look.

i. Polygons

Polygon modelling is a bit different from non-uniform rational basis spline (NURBS) that focuses on curves and surfaces. It offers great flexibility and precision for handling both analytic. Polygon focuses on the object within a 3D environment by representing their surfaces using polygons. The Penjara Pudu structures such as gate, bars, bed, walls, and stairs used polygonal modelling.

Figure 0.15: Example of polygonal modelling of the abandoned Penjara Pudu.

ii. Texturing mapping

Texturing mapping is a method where you can wrap a 3D object with a 2D image. The objective of this process is to add the necessary surface details like texture, colour, gloss, and reflectivity. For this project, a diffuse and a displacement map was applied in the process of texturing. Normally when adding texture to an object with a 2D texture file, the texture will look completely flat. Next what a displacement map will do, it will stimulate depth. This will create an illusion surface which makes the object look real and with better structure. The displacement map is more realistic than a bump map. Nevertheless, displacement map can only be seen on render view. For a diffuse, it displays the materials used. It defines the original colour of texture on the object using the colour information it contains, as seen below.

Bump Map   Displacement Map
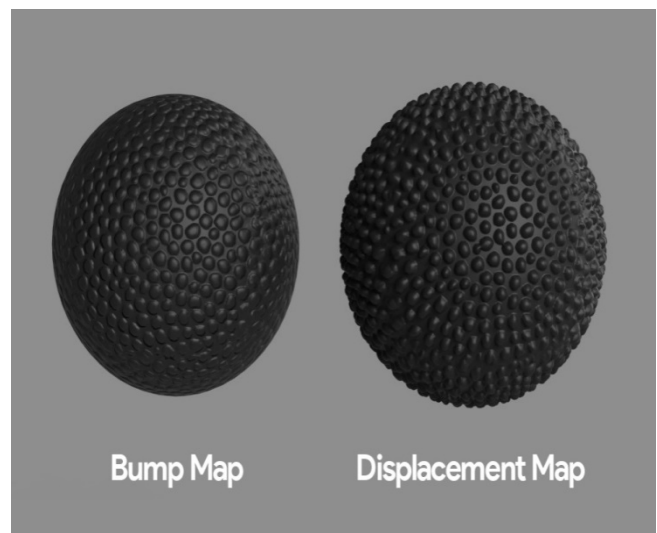
Figure 0.16: Different Bump map and Displacement map.
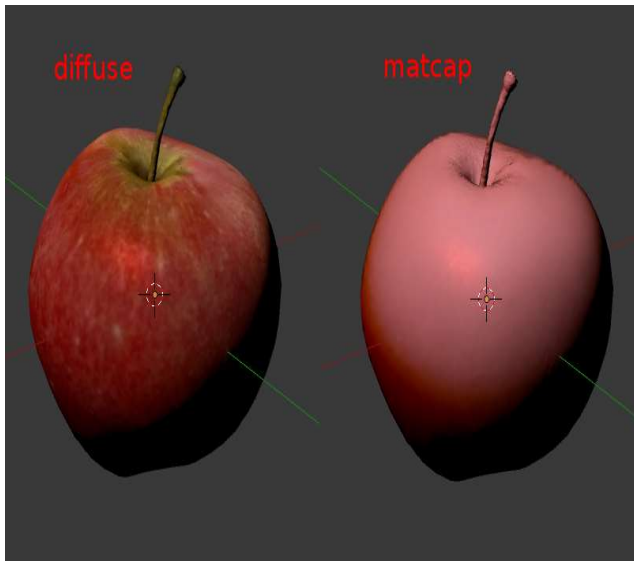
Figure 0.17: 4.0 Diffuse map.

Figure 0.18: Example of wall texture inside the abandoned Penjara Pudu.

Figure 0.19: Example of wall texture inside the abandoned Penjara Pudu.

Figure 0.20: Example of prison guard texture in the abandoned Penjara Pudu.

3.2 Lighting

Lighting is a crucial part of the 3D modelling process. It creates an emotional mood to the viewer's eye. The most important visual goal of lighting design is it helps to create a mood or tone that enhances the audience's emotions. For this project, the skydome was applied as the function of lights. This would give an impact on the modelling done.

Figure 0.21: Example of sky dome.
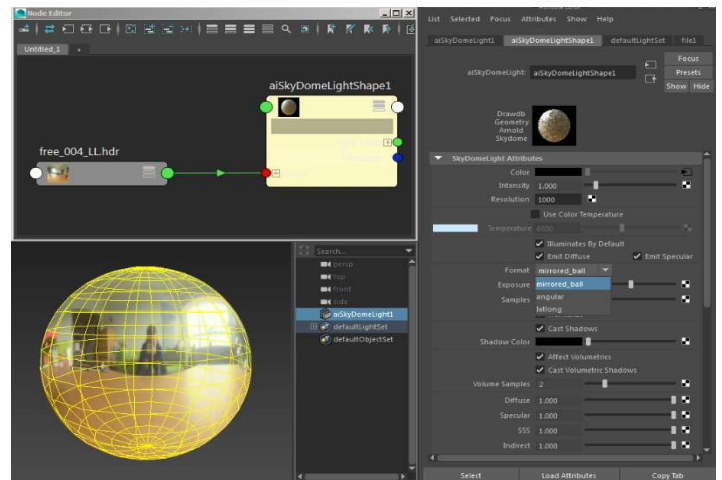
Figure 0.22: Example of sky dome.

3.3 Rendering

Rendering is the final stage in the 3D computer graphics production process. There are two types of rendering which are Real-Time Rendering and Offline Pre-Rendering. Offline Pre-Rendering is against Real-Time Rendering which is not concern about the speed. Thus, this kind of rendering is used in this project of the abandoned Penjara Pudu that will produce the realism of the images in the highest standard.

Figure 0.23: Example of offline Pre-rendering

3.4 Development Methodology

3.4.1 Pre – Production

i. Site visit

Penjara Pudu is one of the oldest buildings in Malaysia located at the junction of Hang Tuah Road and Pudu Road. Even though, the building no longer exists, we managed to get details of the main gate of the abandoned Penjara Pudu and visited the site on 11 March 2020. However, there were a few problems during taking of the measurements. For instance, the road was too small, and the was high traffic since it is in the middle of Kuala Lumpur. The cloudy weather did not help the process of photos; hence a sketch managed to capture the remaining structure of the main gate.
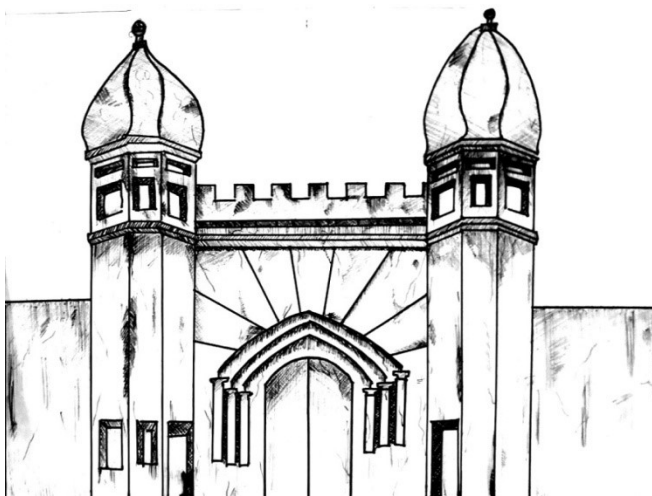
Figure 3.4.1: The sketch of the abandoned Penjara Pudu's main entrance

ii. Drawing and sketching

At this stage, the raw drawing and sketching were finished on paper. Meanwhile, measurements made were compared against the research. The details design of carving was taken as a reference for the modelling phase. Not all shapes, rooms and angles could be drawn since the building no longer exists and there is very limited information on the internet or otherwise.

Figure 3.4.2: The sketch of the abandoned Penjara Pudu's door cell.
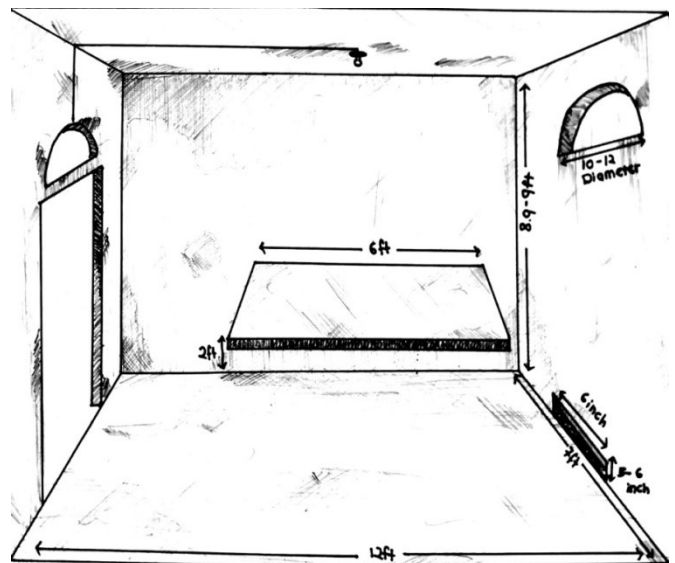
Figure 3.4.3: The sketch of the abandoned Penjara Pudu's room cell.

Figure 3.4.4: A visit to Arkib Negara

Figure 3.4.5: Arkib Negara

3.4.2   Production

i.   3D Modelling

In the modelling stage, most of the poly shape was available in Maya software. Although, the elements are available, recognizing the right tools before starting the modelling process is important (Kheyfets & Vasilieva, 2017). The modelling was done based on the blueprint reference as a starting phase, which makes the job much easier with the real photo work(Koeva, 2017).

ii.   Texturing

At this texturing stage, the modelling of 3D is usually set as the default grey colour. This is the process of clothing the 3D art with the 2D images. For instance, the rustiness from the cell and the mossy look texture of the abandoned Penjara Pudu needs to be present to make sure the texture will be detailed with a real-world mossy wall when rendered.

iii. Lighting

In this phase, lighting plays an important role for the model to look real and old. The placement of lighting begins with an analysis of placing the light at a proper angle. The number of cameras need to be considered since it is a large model. The distance to place lights needs to be related to the model to avoid the extreme lighting exposureduring the rendering process. For this project, the skydomewas used to bring out the deserted look of the abandoned Penjara Pudu. A few tests weredone, and the outcome was not disappointing.

3.43   POST – PRODUCTION

i. Rendering

This is the most technically process. The default rendering in Autodesk Maya 2019 was an Arnold used for rendering the 3D abandoned Penjara Puduproject. There are two types of rendering with a difference of speed such as Real-Time rendering and Offline or Pre-Rendering. Arnold took time to render as categorize as Pre-Rendering while achieving the photo-realistic qualities(Palamar, 2014).

ii.   Composition

In this phase, the final product was released in the composition process. This process combines the rendered elements from multiple sources to one file to create the final product. The output will be a video walkthrough of Penjara Pudu.

IV. DESIGN AND ANALYSIS

4.1   3D mock-up top view of the abandoned Penjara Pudu

The 3D mock-up model was done via a high angle.
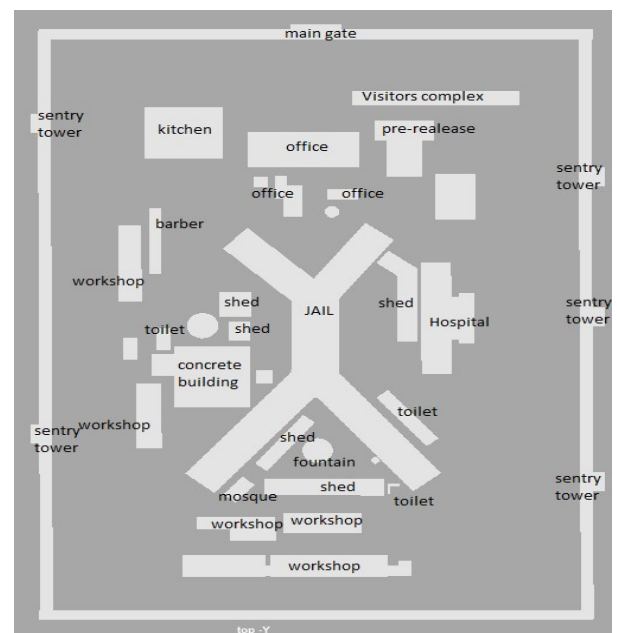
Figure 0.1: 3D mock-up Blueprint of the abandoned Penjara Pudu from high angle

4.2   3D mock-up block of the abandoned Penjara Pudu

The 3D mock-up model done via a high angle
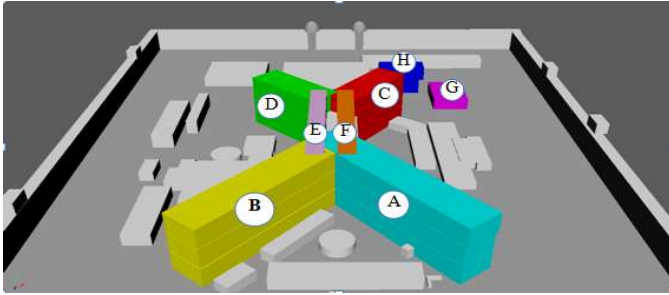
Figure 0.2: 3D mock-up of the abandoned Penjara Pudu block.

Figure above displays different blocks of Penjara Pudu.

Block A = Local (Malay, Indian, Pre-release).

Block B = Local (Malay, Indian, Chinese).

Block C = Foreigners.

Block D = Death row (level G) / Juvenile (Level 1&2).

Block E = HIV + insane + health problems.

Block F = HIV + insane + health problems.

Block G = Isolation block (women cell)

Block H = Pre-release.

4.3 3 D mock-up the levels of the abandoned Penjara Pudu

The 3D mock-up model was done via high angle.
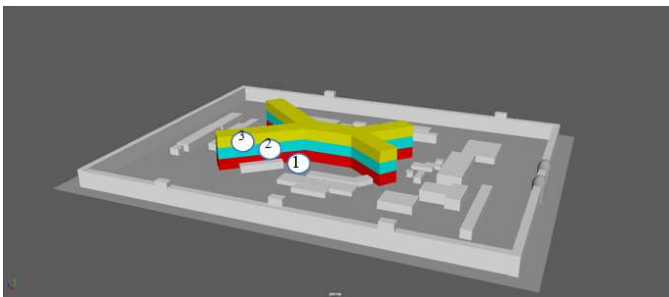
Figure 0.3: 3D mock-up3 levels of the abandoned Penjara Pudu including the ground floor.

4.4 Implementation

i.   3D Modelling

The preparation of the project takes the most time during this phase where every detail needed to be given attention to producing the best results. Autodesk Maya 2019 was the main software being used during the production phase. Autodesk Maya is the most powerful 3D application with spectacular 3D models. The scene, 3D world, visual architecture is possible to create effects (VFX), animation, etc. which are ideal for this project. The tools and different features in Maya help to quickly work on complicated projects by enhancing the quality of production and innovation.

The process of 3D modelling in Autodesk Maya starts with creating any NURBS, polygons, and polygon type to create a model according to the reference materials. In this project, polygons were mainly being used in modelling the arches, walls, roof, door cells, windows, and fences.

Figure 4.4.1: Creating 3D text using polygon type in Autodesk Maya 2020

ii. Main structure

The first thing that was done to start modelling of the structure was the main building which was located at the centre, followed by the 'X'structure. Surprisingly the left and right-wings are not symmetrical according to research. It was quite difficult to start a model of a building when there was no blueprint and the real scale of the building and the demolished building, making it impossible to find a proper reference, even Arkib Negara did not have anything specific. Given the fact that it was a prison, the Malaysian government prohibited releasing the blueprint even after the building was demolished. But we managed to secure a prototype and a thesis regarding Penjara Pudufrom a Final Year Project that helped, since it had a floor plan to guide where structures weret o be placed.

The main building was modelled form polygon and the difference was applied base on the length of the prison. The arc of the cell used the same technique which was the difference in combine mesh setting and it helped to save a lot of time other than create a flawless opening.
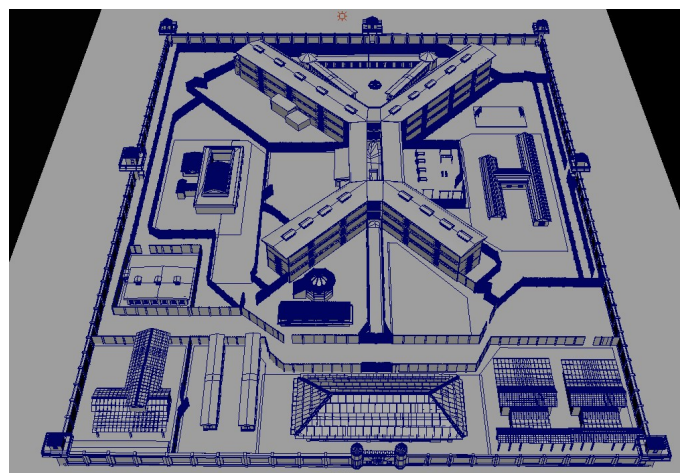
Figure 4.4.2: The 3D model of the main structure which is the Prison.

iii. Architecture

There were many interesting buildings in Penjara Pudu such as the fountain, the hospital, and the kitchen. The main building model made by four angles creating an 'X' figure on the left is where the hospital, the pre-released and the segregated block was located. Each building had its own unique design. The hospital had seven wide window cells on each side and a few small structures on the left side of the other section.
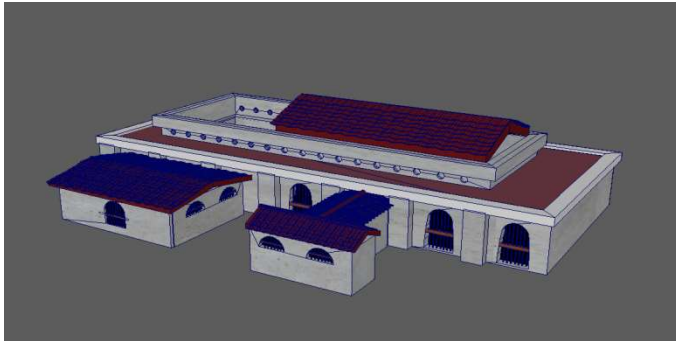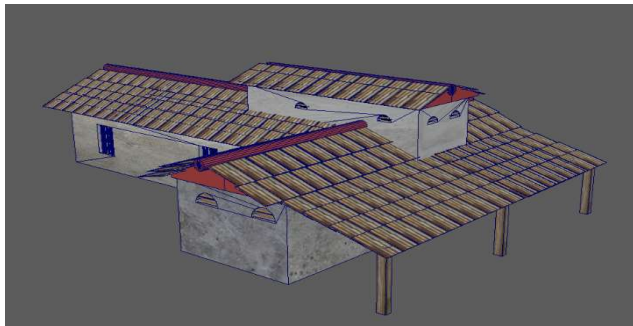

Figure 4.4.3: The hospital.

Figure 4.4.4: The Pre-release building.

The Pre-release building was located on the top left of the prison next to the main office. The criminals who were about to leave the prison would be moved to the pre-release facility.
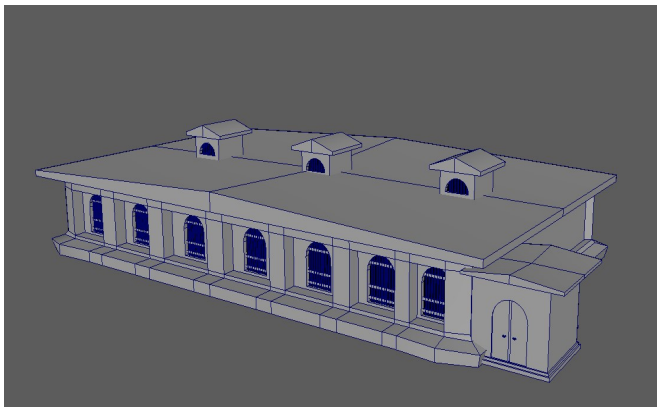
Figure 4.4.5: The segregated block.

The women do not stay in the same building as the male inmates. They live in an isolated block called the segregated block or separated.

iv. Unique structure

Every model has its own unique pattern but the one that took the spotlight was the canteen. The roof of the building has seven joints and from the top, the roof looks like our national flower, the Bunga Raya or hibiscus. The canteen was two stories high and located beside the prison block.
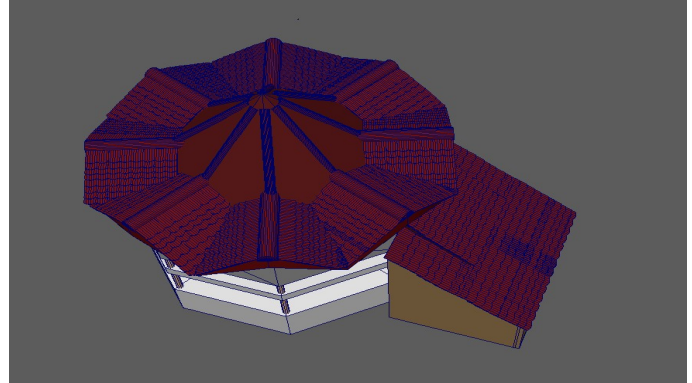
Figure 4.4.6: Top view of the canteen.
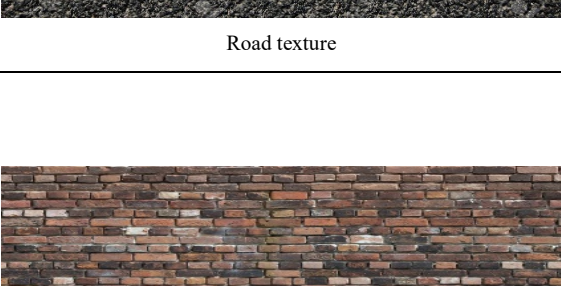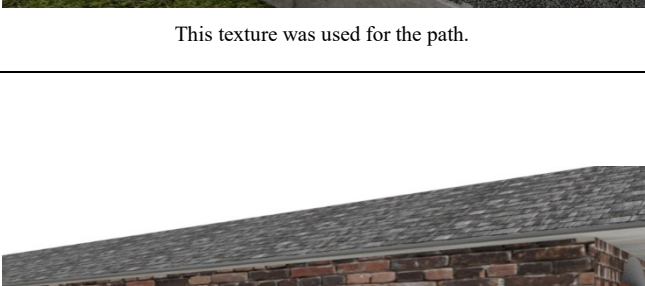
Figure 4.4.7: Side view of the canteen.

v. Material

Shading and texturing took place once the 3D modelling of the entire scene was complete. In this specific project, Lambert and Blinn is the favourite shader that completes the look of the building to appear more realistic and believable. In addition, the process of applying a picture to the 3D model called texturing, applies the flat picture or images to a model to give it a more life-like colour and detail rather than just a plain one colour model.

vi. Texturing

By default, Maya already assigned Lambert as the shader that represents matte surfaces with no specular highlights to everything that will be created. It is quite useful since there are a few objects that have the exact surface and the only colour change that needed to be done. For this project, texture on the internet was used for the wall, roof, grill, and fences. It was very challenging to find a suitable texture for the model due to the building was no more and the only reference was the internet, and it was unclear.

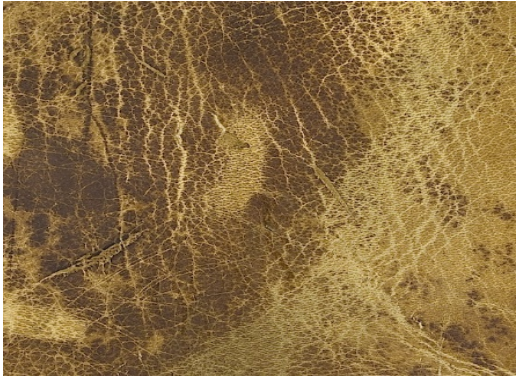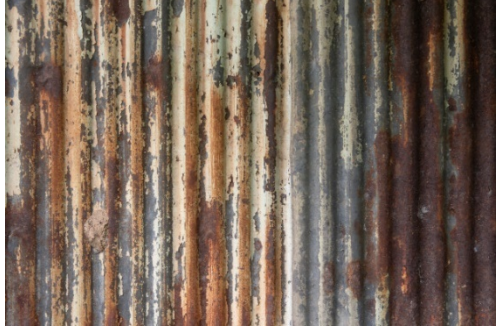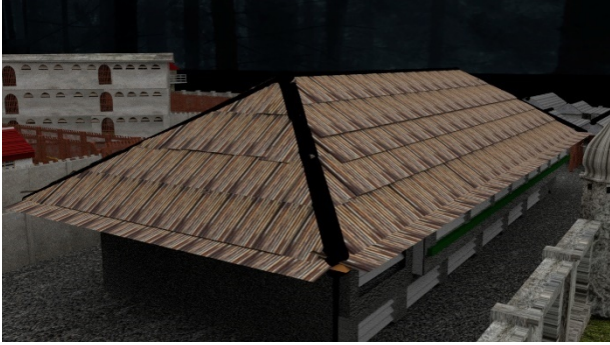| Texture	Model Application
Old roof texture	This texture was used for the roof.
Rusty texture	This texture was used for the gate, fence, and prison grill.
Road texture	This texture was used for the path.
Brickwood texture	This texture was used for the barbershop.

Concrete texture	This texture was used for the wall of Penjara Pudu.
Leather texture.	This texture was used for the padding for the gym.
Zinc Rusty Texture.	**This texture was used for the main office.**

Table 5.1 : The Application of shader

vii. Lighting and camera setup

To render the scene, the model needs to have a light source and the main source of light used in this project was the AiSkydome Light since the building is an outdoor scene. The AiSkyDome is represented by a spherical dome in the background and the setting is beginner friendly. This lighting setting was chosen because it can also be used with high dynamic range (HDR) images to perform image-based environment lighting which is perfect for this 3D model of the abandoned Penjara Pudu project.

The scene appeared in Maya is being viewed as the camera's perspective, and the other three orthographic cameras such as

side, top and front that correspond to the default scene to help ease the process of 3D modelling. Creating an additional camera gave the ability to set the angle of view, focal length, other than movement and rotation of the camera, based on the storyboard of the walk-through video. It helped to create the scene just as planned.
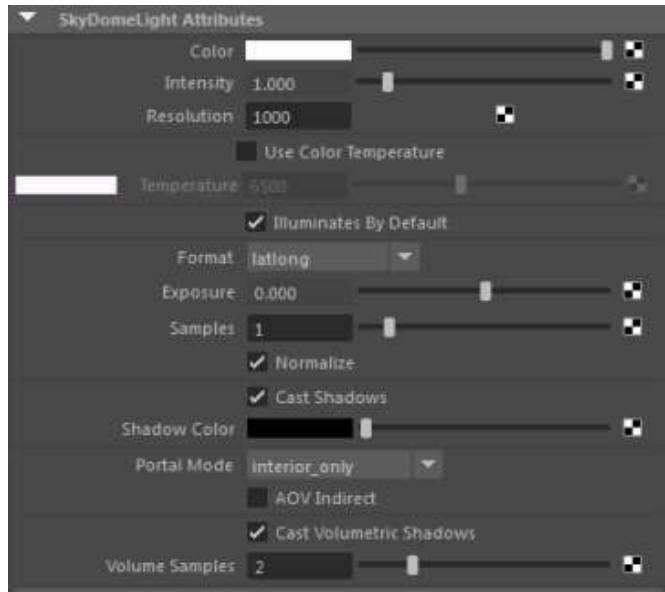

Figure 4.4.8: SkyDome light setting.

viii Rendering

After all the materials were assigned, scene and lighting set up proceeded with the rendering, to turn the information from the 3D model into a 2D image. A more realistic rendered image will take a longer time than a non-realistic model depending on how complex and detailed the 3D model is. For this specific project, Arnold render was used to render by sequence to help a high quality 2D image that would be displayed for the final product, which is the walk-through video. Compared to Maya Hardware 2.0 renderer, Arnold cost higher render times, but produces a great photorealistic outcome.
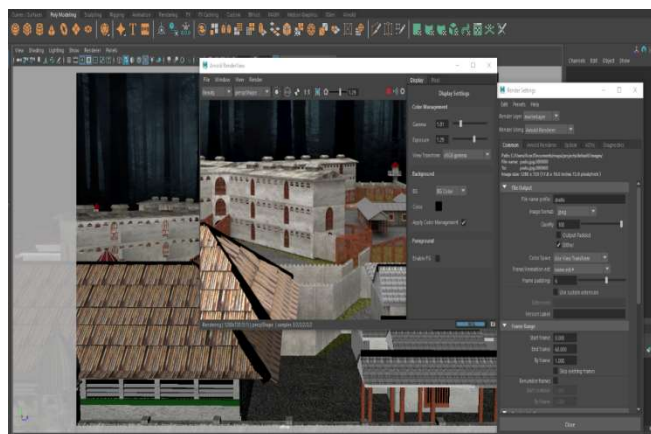
Figure 4.4.9: Render setting using render sequence of Arnold Renderer.

ix. Video walk-through

The final step in completing this project was to compile all the rendered sequence into a clip and arrange it in a video editor to create the video walk-through. Each scene was imported into Adobe Premiere Pro CC with the setting of 1 frame per second, between 50 to 30 speed and set time interpolation of optical flow for an come out with a smoother video. A total of less than three minutes was enough to present the render sequence, including the tour of the whole building. Additional background music was added to make the video walkthrough more presentable.

The implementation process requires testing since the outcome was not good on the first try. Several errors during modelling, applying materials and rendering took a lot of effort and time to redo parts of the project, and since there was no physical reference available, online research was the only source. However, the rendering process was one of the simplest yet time-consuming process to complete since it took about a week to render the whole scene at a high-quality setting. It is important to run a test on the render setting first before jumping to render the whole model of the building.
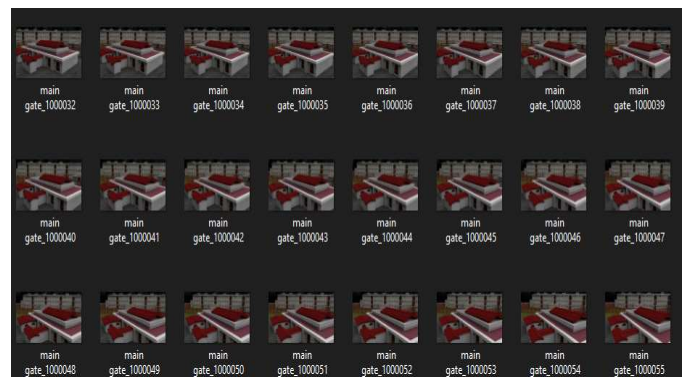

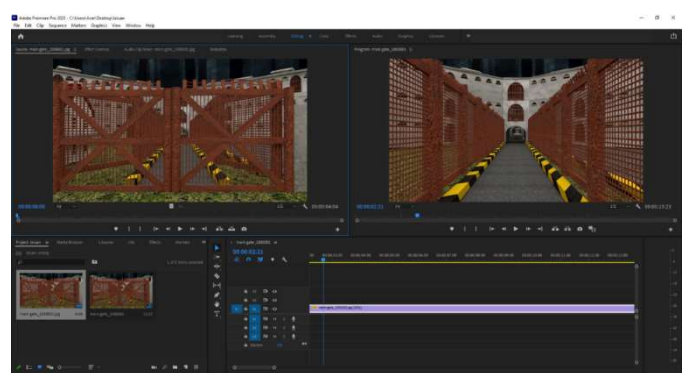Figure 4.4.10: Complete render sequence in a folder selected.

Figure 4.4.11: Import image sequence into Adobe Premiere Pro to compile all the scenes into a video walk-through.

V. CONCLUSION

The main objective of producing a 3D modelling of Penjara Pudu walk-through video was accomplished. The video that used texturing and rendering were done using Autodesk Maya 2020 software while the production of the walk-through was

done from the rendered frame was edited in Adobe Premiere Pro. Although the measurement of the building might not be the same as in the real-life building due to it being non-existent anymore and off-limits by the government, the model managed to give the viewer an idea of the overall building from a better perspective.

Nevertheless, there are a few limitations during the pre-production phase until the end product. However, every problem has its own solution. Below are some recommendations for future projects on Penjara Pudu:

i. Source of information

Heritage buildings around Kuala Lumpur usually have blueprints and history saved in the public library but for this building, there was no reference that could be found. Although Arkib Negara had a blueprint of the building, it was off limits as it was a prison, and the information was classified. The only way to overcome this problem was to conduct interviews, send emails and share information with anyone that had researched on Penjara Pudu.

ii. Site visiting

There was not much to visit as the building had been demolished. The only structure that was still standing was the main gate. As we embarked on this project during the Movement Control Order (MCO) in March 2020, the site visiting could not be done but we did manage a sketch of the main gate. Do online research on the building scale and try to find 360 views for the building to get a specific perspective of the building as a reference.

iii. Moving project onto different computers

If you need to move this huge project to a different computer, check as difference computers will cause the scenes to be completely different in terms of modelling, shading, and colour management. Double-check, redo and re-apply the texturing, correcting errors to get the desired scene before starting the rendering process. It will also be good to conduct testing on different platforms to observe outcomes.

To conclude, the whole project requires good planning to ensure all conditions are met to make this project a success. By using proper equipment and software, this project had a good outcome. This design, mainly done in Autodesk Maya shows the making of 3D modelling, which is not as simple as it looks especially when applying the right shader and materials to the model. The final outcome might not be an exact version of the building due to the technical issues mentioned, but it is still part of our history. It might not be pleasant, but the dark recollections of Penjara Pudu will always be part of our country's past.

BIODATA

Associate Professor Dr Roslina Abdul Latif is a broadcast journalist by profession (TV 3). Her research interest ranges from journalism, broadcasting, broadcast journalism, film trope and knowledge management. She is a columnist for Astro AWANI and Bernama. She also authored *A Broadcasting History of Malaysia: Progress and Shifts* and *Sidelines.*

Izzul Hafiy bin Rosli is a final year student at University Tenaga Nasional, majoring in Graphic and Multimedia. His interest in this project was due to his disappointment that Penjara Pudu was not considered a nation's heritage and preserved history.

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LIST OF FIGURES

APPENDIX B: Full Rendered "3D Model of Abandoned Penjara Pudu Building"

Front Perspective

Right Perspective

Left Perspective

Back Perspective

Ariel View

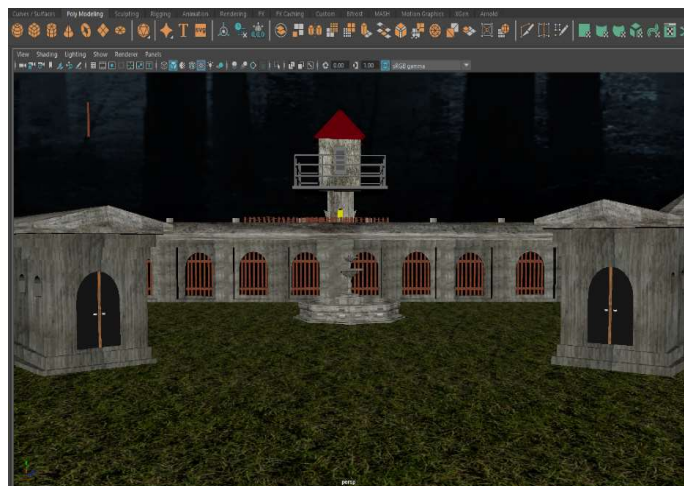Top View

Main Office

Rooftop

Gate

Main Gate

Workshop and Mosque

Hospital

Fountain

Gym

Basketball court

Guard house

Canteen and office

Barbershop

Guard tower

Women Jail and Pre-release