



**DEPARTMENT OF BUILDING  
UNIVERSITI TEKNOLOGI MARA  
(PERAK)**

**CONCRETE CROSSING SLAB AS COVER OR CLOSING FOR  
DRAINAGE AT RESIDENTIAL AREA**

**Prepared by:**

**SAIFUL HAKIM BIN FAZAL**

**2016618034**

**DEPARTMENT OF BUILDING**  
**FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING**  
**UNIVERSITI TEKNOLOGI MARA**  
**(PERAK)**

**JULY 2019**

It is recommended that the report of this practical training provided

**By**

**SAIFUL HAKIM BIN FAZAL**

**2016618034**

**entitled**

**CONCRETE CROSSING SLAB AS COVER OR CLOSING FOR DRAINAGE  
AT RESIDENTIAL AREA**

Accepted in partial fulfilment of requirement has for obtaining Diploma In Building.

Report Supervisor : Pn Nurhasyimah Binti Ahmad Zamri.  
Practical Training Coordinator : En. Muhammad Naim Bin Mahyuddin.  
Programme Coordinator : Dr. Dzulkarnaen Bin Ismail.

**DEPARTMENT OF BUILDING**  
**FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING**  
**UNIVERSITI TEKNOLOGI MARA**

**(PERAK)**

**JULY 2019**

**STUDENT'S DECLARATION**

I hereby declare that this report is my own work, except for extract and summaries for which the original references stated herein, prepared during a practical training session that I underwent at ANZI Development Sdn Bhd for duration of 14 weeks starting from 25 Feb 2019 and ended on 31 May 2019. It is submitted as one of the prerequisite requirements of DBG307 and accepted as a partial fulfilment of the requirements for obtaining the Diploma in Building.

Name : Saiful Hakim Bin Fazal

UiTM ID No : 2016618034

Date : 31 MAY 2019

## ACKNOWLEDGEMENT

Alhamdulillah, praise to Allah, the Most Merciful, the Most Grateful.

I would like to thank with my heartfelt for the guidance, advice and help given throughout the period of training by the following group of amazing individuals. First and foremost, I would like to thank En Ahmad Asyraf bin Zainuddin for the opportunity given, to conduct my training in his esteem company. His teams have enabled me to learn and develop my understanding, knowledge and feel of real time projects, and the theory involved in analysis of structures, building and civil works. They are responsible towards streamlining and assessing my training. It is an honour for me to be given the opportunity to 'work' with all of you.

I would also like to thank ALL the UiTM lectures that have taught and nurtured me in becoming a better student and person. I would also like to extend my deepest appreciation to the lectures who are directly involved during my training stint.

Last but not least, my special thanks to my beloved parent for their sacrifices over the years to raise me up.

Thank you so much.

## **ABSTRACT**

Concrete crossing slab is one of the important elements of infrastructure work in building construction. It is used to facilitate the movement of the public surrounding. However, there are also a handful of projects that do not apply it and consider it a trivial thing. This report will discuss about the concrete crossing slab at the sidewalk of the residential area project. This report was conducted for concrete crossing slab at Batu Rakit, Kuala Nerus, Terengganu. The objective of this report is to find out the method construction used for this concrete crossing slab. It will focus on the proper procedure of construction that have been applied at the site. Next, to study the benefit of the concrete crossing slab and the suitable use of this slab based on site situation. All the meaning, this research about concrete crossing slab have been identified and can be use in the future wisely.

<b>CONTENTS</b>		<b>PAGE NO</b>
Acknowledgement		i
Abstract		ii
Contents		iii
List of tables		iv
List of figures		v
<b>CHAPTER</b>	<b>1.0 INTRODUCTION</b>	
	1.1 Background and Scope of Study	2
	1.2 Objectives	4
	1.3 Method of Study	5
<b>CHAPTER</b>	<b>2.0 COMPANY BACKGROUND</b>	
	2.1 Introduction of Company	7
	2.2 Company Profile	10
	2.3 Organization Chart	11
	2.4 List of Project	
	2.4.1 Completed Projects	12
	2.4.2 Project in Progress	12
<b>CHAPTER</b>	<b>3.0 CASE STUDY</b>	
	3.1 Introduction to Case Study	13
	3.2 Methods of Construction	15
	3.3 Benefits of Concrete Crossing Slab	22
<b>CHAPTER</b>	<b>4.0 CONCLUSION</b>	
	4.1 Conclusion	23
<b>REFERENCES</b>		24

## **LIST OF TABLES**

- 1. Table 2.1: Consultants for Residential Projects**
- 2. Table 2.2: Company Profile**
- 3. Table 2.3: List of Completed Project**
- 4. Table 2.4: List of Project in Progress**

## LIST OF FIGURES

1. **Figure 1.1: Concrete Crossing Slab**
2. **Figure 1.2: Steel Crossing Plate**
3. **Figure 1.3: The flow process in method of study**
4. **Figure 2.1: Company Logo of ANZI Development**
5. **Figure 2.2: Organisation Chart**
6. **Figure 3.1: Signboard of the Project**
7. **Figure 3.2: Layout Plan**
8. **Figure 3.3: Site Construction**
9. **Figure 3.4: Measuring the size**
10. **Figure 3.5: Making Formwork Case**
11. **Figure 3.6: Preparation for Reinforced Bar**
12. **Figure 3.6 shows The Complete installation of Formwork Case**
13. **Figure 3.7 shows The Complete installation of Formwork Case**
14. **Figure 3.8: Formwork Stand**
15. **Figure 3.9: Reinforced Bar Installation**
16. **Figure 3.10: Installation Rebar**
17. **Figure 3.11: Concrete Mixing by Machine**
18. **Figure 3.12: Concrete Poured into the Formwork case**
19. **Figure 3.13: Concrete Hardened After Several Days**
20. **Figure 3.14: Formwork Dismantle**



## CHAPTER 1.0

### INTRODUCTION

#### 1.1 Background and Scope of Study

In this case of study, this report was conducted at Batu Rakit, Kuala Nerus, Terengganu. Observation on the concrete crossing slab had been done at the whole residential area and because of its large area, it has deep drained to ensure that the area is not flooded. This report only focussing on the concrete crossing slab that been use as the cover or closing for the drain to avoid any possible casualties to the residents and to facilitate resident's movement to move around the area. Typically, some other construction also uses steel crossing plate as the cover or closing drainage and for the sidewalk. In this project, concrete crossing slab has been used for this residential area.



Figure 1.1: Concrete Crossing Slab



Figure 1.2: Steel Crossing Plate

This project is under ANZI Development Sdn Bhd which is located at Chabang Tiga, Kuala Terengganu, Terengganu. At this construction site consists of terrace and semi-D houses and its structure have been completely built except the wiring and the finishing painting. An interview and observation for the construction site have been carried out in order to get a much clearer picture of how the works are being carry out on site. This project currently at 70% completion and estimated to start operating by next year.

## 1.2 Objectives

The objectives of this study are:

- i. To find out the methods of construction of the concrete crossing slab.
- ii. To study the benefit of the concrete crossing slab and the suitable use of it.

### 1.3 Methods of Study

To conduct this study, there were three methods of study to complete this task which is by observation work progress, interview with the supervisor and labors, and last but not least, using references from documents review and make research through internet about the topic before finalising the report.

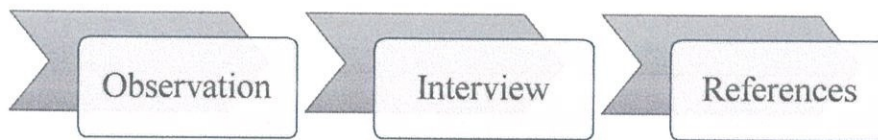


Figure 1.3: The flow process in method of study

#### 1. Observation

The observation has been done by observing the work done or the procedure done by the labor at the site construction. This process started from the earlier part of the procedure and has been done throughout the practical training period. All the information and data such as notes and pictures have been records in the log book.

#### 2. Interview

Moreover, informal interview also has been done with the supervisor and the labors during the work progress. Their abundant knowledge really helps to complete this report well. An interview during the construction progress on site have been carried out in order to get a much clearer picture of how the works are being carry out on site.

### 3. References

Other than that, the information also gained from documents review from the company records such as construction drawing, company profiles, standard operating procedures, progress report and past work project. This information as well as help to gain more knowledge for the report.

Lastly, some information being collected from the internet help to improve knowledge about the crossing slab. But, the searching of information from the internet have to be done thoroughly to avoid invalid information. Therefore, only information with authority can be selected as additional information.

## CHAPTER 2.0

### COMPANY BACKGROUND

#### 2.1 Introduction of Company



Figure 2.1: Company Logo of ANZI Development

ANZI Development Sdn Bhd (“ANZI D”) is a property development company involved in property development and project management. This company committed to offer quality products and services at competitive prices and uphold the belief to be a good and responsible corporate citizen. The company vision is to become a leading, well-diversified property development and construction company in the East Coast of the Peninsular Malaysia and also envisioning to become an active global player. ANZI D mission is to be an excellent, reputable and committed property development company which provide the need of the community and the interest of clients. Build modern, innovative and affordable homes and commercial buildings that meet the practical requirements and expectations of discerning homeowners and business buyers, ensuring on-time delivery without compromising quality in finished products. The company provide innovative products and services by applying the hands-on approach and commitment to continual improvement in quality.

## CORPORATE OBJECTIVES

- To earn a fair return on investments.
- To sustain growth through re-investment of retained profits.
- To maintain a high standard of business ethics, integrity and practices.
- To participate and contribute effectively towards nation-building and the welfare and advancement of the society in which we operate.
- To continuously attract, retain and develop human capital.
- To maintain mutually beneficial relationship with our business associates.
- To provide residential and commercial properties which accommodate all market segment to ensure maximum satisfaction of our valued customers.

## CONSULTANTS FOR RESIDENTIAL PROJECTS

No.	CONSULTANTS	PROFESSION	LIST OF SELECTED MAJOR PROJECTS
1	Arkitek Punca Cipta 1340 Jalan Sultan Mahmud Kuala Ibai, 20400 Kuala Terengganu	Architects (T) (F)	1) 19 Storey Hotel on Lot 166 & 167, Sek 14, Kota Bharu  2) 22 Storey Hotel on Lot 4566 & 4218, Jln Tengku Ampuan Mariam, KT  3) Mixed Development (Budget Hotel, Shopoffices and Bazaar ) on Lot 261 & 262, Kuala Terengganu

2	Technipro Consult Sdn Bhd 51A, 2nd Floor, Jln Tok Lam 20100 Kuala Terengganu, Terengganu	C & S Engineer  (T) (F)	1) Akademi Bomba & Penyelamat (FRAM), Daerah Marang, Terengganu 2) Pusat Ekuetrian, Sukan & Rekreasi Terengganu 3) Sekolah Berasrama Penuh Integrasi, Bandar Permaisuri, Terengganu 4) Apartment Kos Sederhana 9 Tingkat (72 unit) Apartment Kos Rendah 14 Tingkat ( 168 Unit ) Kg Ladang Sekolah, Daerah Kuala Terengganu
3	Jurukur Jiturunding 25A, Jalan Kenari 17E, Bdr Puchong Jaya, 47100 Puchong	Land Surveyor  (T) (F)	1) SP Setia – Sky Residency, SetiaWalk Promenade, Desa Tanjung 2) IOI Corp – Puteri Palm, Sri Bayu Apt, Sri Dahlia, Aseana Puteri 3) Hua Yang Bhd – One South 4) Metro Hldg – Pelangi Sentral, Saville

Table 2.1: Consultants for Residential Projects



## 2.2 Company Profile

Registered Business Name	ANZI Development Sdn Bhd (“ANZI D”)
Business Address	No. 12, Tingkat 1, Pusat Komersial Chabang Tiga, 2100 Kuala Terengganu, Terengganu
No. Tel	
Fax	
Email	anzidevelopment@gmail.com
Date of Incorporation	13 <sup>th</sup> June 2000
Business Activities	(1) Residential Property Development (2) Commercial Property Development
Company Secretary	Konsep Management Services Sdn. Bhd. (62371-H) Lot 507, 5 <sup>th</sup> Floor, Plaza Perdana, Jalan Engku Sar, 20300 Kuala Terengganu, Terengganu Darul Iman

Table 2.2: Company Profile

2.3 Organisation Chart

### ORGANISATION CHART Key Management Team

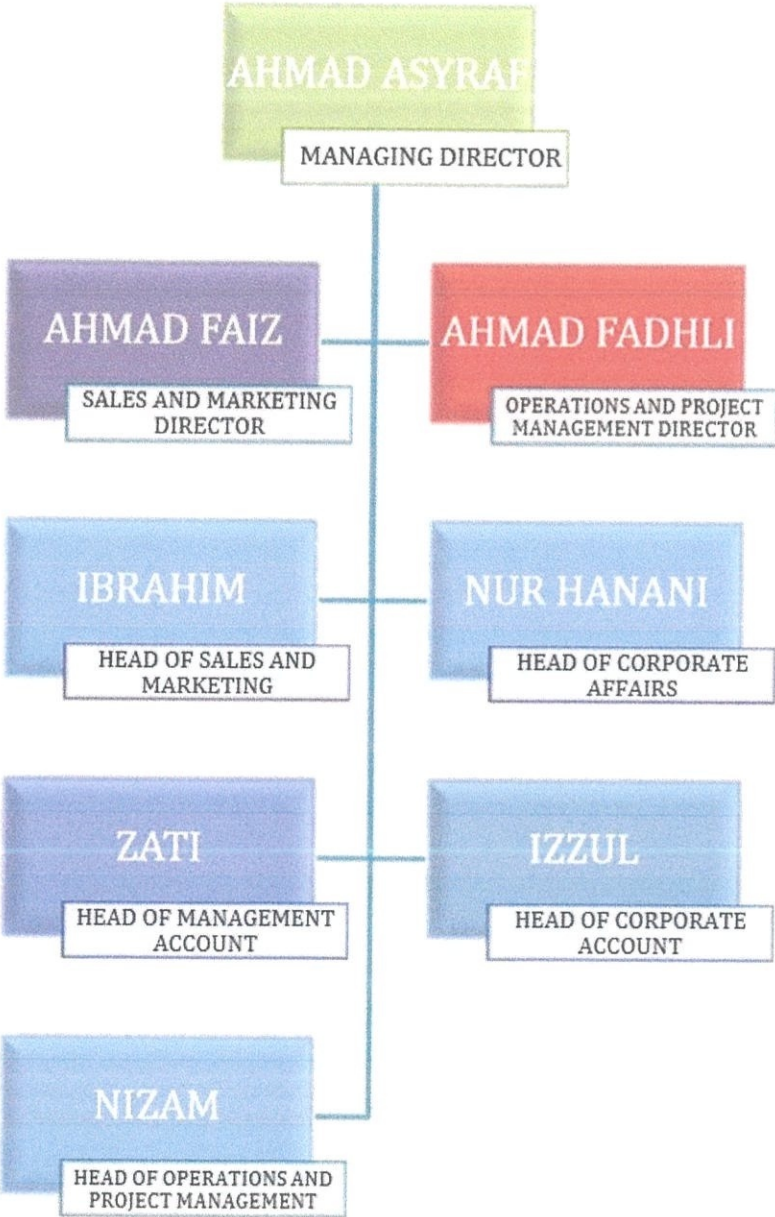


Figure 2.2: Organisation Chart

## 2.4 List of Project

### 2.4.1 Completed Projects

	<b>PROJECT NAME &amp; DEVELOPMENT COMPONENTS</b>	<b>TOTAL SALES</b>	<b>DEVELOPMENT COST</b>	<b>GROSS DEVELOPMENT PROFIT</b>
1	Proposed Development on Lot 12719, Mukim Batu Rakit, Kuala Terengganu (COMPLETED)  - 11 Unit Single Storey Terrace - 8 Unit Single Storey Semi-D - 1 Unit Single Storey Bungalow	<b>RM 4,588,215</b>	<b>RM 2,625,162 + Landowner's return RM 789,000</b>	<b>RM 1,174,053</b>
2	Proposed Development on Lot 3390 (Phase 1) & 3391 (Phase 2) Mukim Batu Rakit, Kuala Nerus  PHASE 1 @ 70% COMPLETION PHASE 2 TO START IN 2019	<b>RM 19,276,278</b>	<b>RM 10,362,512 + Landowner's Return RM 4,433,544</b>	<b>RM 4,480,222</b>
	<b>TOTAL</b>	<b>RM 23,864,493</b>	<b>RM 18,210,218</b>	<b>RM 5,654,275</b>

Table 2.3: List of Completed Project

### 2.4.2 Project in Progress

	<b>PROJECT NAME &amp; DEVELOPMENT COMPONENTS</b>	<b>ESTIMATED SALES</b>	<b>ESTIMATED DEVELOPMENT COST</b>	<b>ESTIMATED GROSS DEVELOPMENT PROFIT</b>
1	Proposed Development on Lot 1041 Mukim Gelugor Kedai, Kuala Terengganu  - 13 Unit Double Storey Terrace - 2 Unit Double Storey Semi-D - 2 Unit Double Storey Bungalow  EXPECTED TO COMMENCE EARLY 2019	<b>RM 6,086,531</b>	<b>RM 3,327,817 + Landowner's Return RM 1,217,306</b>	<b>RM 1,541,408</b>
2	Proposed Development On Lot 524, Mukim Kubang Parit, Kuala Terengganu - 10 Units of Double Storey Semi-D - 7 Units of Single Storey Bungalow  EXPECTED TO COMMENCE IN MID 2019	<b>RM 8,037,000</b>	<b>RM 4,760,649</b>	<b>RM 3,276,351</b>
	<b>TOTAL</b>	<b>RM 14,123,531</b>	<b>RM 9,305,772</b>	<b>RM 4,817,759</b>

Table 2.4: List of Project in Progress

## CHAPTER 3.0

### CASE STUDY

#### 3.1 Introduction to Case Study



Figure 3.1: Signboard of the Project

This project is under ANZI Development Sdn Bhd and located at Kampung Merabang Kapal, Mukim Batu Rakit, Kuala Nerus, Terengganu. This project consists of 44 units of terrace, 32 units of semi-detached and 1 unit of double storey bungalow. This project currently at 70% completion and estimated to start operating by next year. The cost for the project worth RM 19,276,278.00 including the development cost. The project expected complete and start operation by next year.

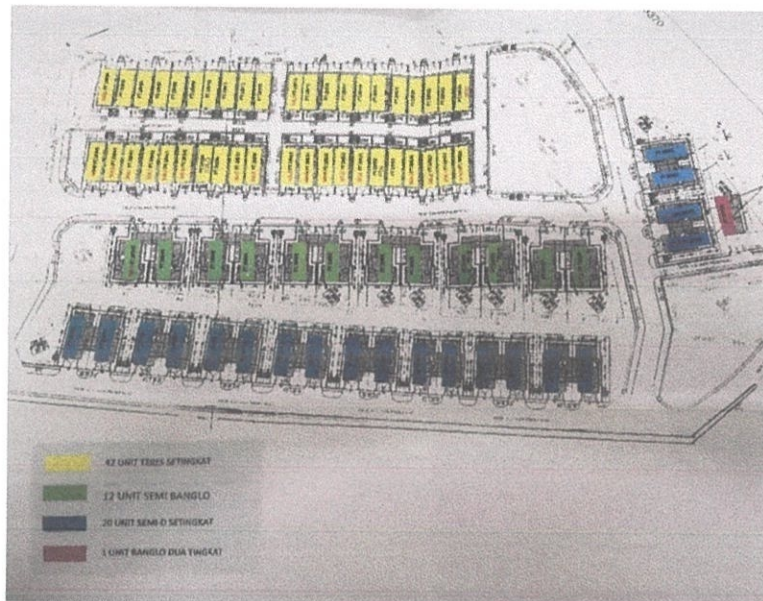


Figure 3.2: Layout Plan



Figure 3.3: Site Construction

This report more focussing on concrete crossing slab that is used to cover the deep drainage at the residential area around the houses. A drain is using to remove an unwanted water or waste liquids to a more useful area and funneled into a receptacle or sewers. However, its is unsafe to let it exposed without any safety provided. The concrete crossing slab are important used as cover and closing to the drainage. Other than that, it also can be use as sidewalk for the residents and help them to move more freely.

### 3.2 Methods of Construction Concrete Crossing Slab

This concrete crossing slab is built in-situ at the construction site and required one skilled labour and two general labor for each task. The size of the concrete crossing slabs is depending to the size or the wide of the drain. Normally, the thickness of this crossing slab is 5 inch or 127 mm in the drain surface and the surface of the crossing slab are equal with the top surface of the drain to make it smooth surface.

1. Measuring the size.



Figure 3.4: Measuring the size

Measuring the actual size, length x width x thickness for the crossing slab. In this case, the width and length of crossing slab are depending on the drainage size as it actually fixes into the drain. The thickness of the crossing slab is 5 inch or 125 mm into the drain.

2. Preparing the formwork and reinforced bar.



Figure 3.5: Making Formwork Case



Figure 3.6: Preparation for Reinforced Bar

Preparing the formwork case and reinforced bar are really important and need to be done by a skilled worker. This is to prevent any leakage happened during the concreting process and has to be done meticulously to avoid any waste material.

### 3. Formwork Casing Installation



Figure 3.6: Installation of Formwork Case



Figure 3.7: The Complete installation of Formwork Case





Figure 3.8: Formwork Stand

Formworking or installing formwork case been done well to prevent any leakage happened during the concreting process and to get the well-shaped of crossing slab. The formwork stand is needed to been uses as support to bear the weight of concrete from collapse.

#### 4. Reinforced Bar Installation



Figure 3.9: Reinforced Bar Installation



Figure 3.10: Installation Rebar

Installing the reinforced bar by skill worker to ensure be done at actual position. The installation of rebar is really important to prevent loss-shaped of the crossing slab and to prevent the loss-strength of the concrete.

## 5. Concreting Work



Figure 3.11: Concrete Mixing by Machine



Figure 3.12: Concrete Poured into the Formwork case

Concrete grade 20 are used for this concrete crossing slab. Concrete will be poured into the formwork case to construct the concrete slab. Concrete compacted manually by using a rod compactor to make sure the mixture of concrete mix uniformly.

#### 6. Concrete Hardened



Figure 3.13: Concrete Hardened After Several Days

## 7. Formwork Dismantle



Figure 3.14: Formwork Dismantle

After the concrete truly hardened, remove or dismantle the formwork casing.  
127 mm thick of concrete crossing slab fixed on the drain surface.

### **3.3 Benefits of Concrete Crossing Concrete.**

#### 1. Affordable

The fact that a concrete crossing slab is so much cheaper than alternative materials such as steel crossing plate. Concrete is by far one of the materials that will leave less damage to our budget. When considered all the other benefits of concrete crossing slab, it just makes the price so much more lucrative.

#### 2. Durable

When install a crossing slab or sidewalk, the expectation of the consumer to last for several years, if not forever. With concrete walk, it will stay there for years. The pure durability of concrete makes it such an excellent candidate for walkways, and so many other projects because it is high durable and long lasting. Plus, it's incredibly versatile that can be shape around which brings up the third point.

#### 3. Concrete Can Fill Any Size Walk Area / Flexible

The beautiful thing about concrete is that can be shape it to specific needs. Making it the most versatile walkway material to use at the most affordable price. But it keeps getting better. its

#### 4. Change the Colour

The colour of concrete slabs used to be a major disadvantage, as concrete only came in gray. However, there are options for colouring and decorating your concrete slab floor. Acid stain, when properly applied, will change the colour of the concrete and create interesting shades and patterns on your slabs.

## CHAPTER 4.0

### CONCLUSION

#### 4.1 Conclusion

A concrete crossing slab are really significant and actually can help to prevent the worrisome of residents or any other homeowner that has large size of drainage. This because this concrete crossing slab can act as a cover or closing to the drainage and to prevent any harm to the residents. Other than that, these concrete crossing slab also been act as the sidewalks or walkways to ease their movement around the surrounding area without any threat and dangerous situation.

Concrete crossing slab also very versatile and flexible to shape around with low cost. It is very economic and save budget compared with other material of crossing slab such as steel plate. Instead of been attractive by its cost, it is also very durable and long lasting. With concrete walk, it will stay there for years.

After all, with all these benefits and advantages of concrete crossing slab, its more beneficial to apply it nowadays. It is not troublesome and very easy handgrip to all.

## REFERENCES

1. <https://theconstructor.org/concrete/slab-casting-work-procedure/1656/>
2. <https://www.researchgate.net/publication/308206250> A Study on the Quality Control of Concrete Production in Dhaka City
3. <https://civiltoday.com/structural-engineering/53-concrete-slab>
4. <http://www.yourhome.gov.au/materials/concrete-slab-floors>
5. <https://limitlesspavingandconcrete.com/benefits-concrete-walkway/>
6. <https://www.hunker.com/13402295/advantages-and-disadvantages-of-concrete-slab-floors>
7. <https://www.thespruce.com/in-depth-look-at-concrete-flooring-1314684>
8. <https://www.durham.com.au/gallery/galvanised-chequer-plate-lids/>
9. <https://www.masterbuilder.co.in/insitu-concrete-floor-systems-classifications/>