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(PERAK)

SEPTEMBER 2015

STUDENT'S DECLARATION

I hereby declare that this report is my own work, except for extract and summaries for which the original references are stated herein, prepared during a practical training session that I underwent at Perbadanan Memajukan Iktisad Negeri Terengganu for a duration of 5 months starting from 25 MAY and ended 9 OCTOBER 2015. It is submitted as one of the prerequisite requirements of DBN307 and accepted as a partial fulfilment of the requirements for obtaining the Diploma in Building.

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SEPTEMBER 2015

It is recommended that this practical training report prepared

by

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entitled

**Quality Assessment System in Construction (QLASSIC) at PB Sentral and KP
Perdana sites at Kuala Terengganu**

be accepted in partial fulfilment of the requirement for obtaining the Diploma in Building.

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Alhamdulillah, thanks to Allah for giving me the grace of my life to complete my training and report. I took five months to get the report done completely. This report may not be complete without the help and supports from other individuals or groups.

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ABSTRACT

The quality of workmanship is an important aspect in a construction work and will be affected if there are no proper standards of quality. Thus, CIDB took the initiative to improve the quality of construction work by introducing the system of Quality Assessment System in Construction (QLASSIC). This report was conducted to explain the contributors to the low quality of construction works at Kuala Terengganu. Besides that, it covers the methods of QLASSIC and the elements involved in the quality assessment which is focused to architectural works. The architectural works which more to finishes works in the building. Last but not least, PMINT are expected to increase the efforts in introducing the QLASSIC for every project and can improve the quality of work by referencing the guidelines as set by QLASSIC.

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LIST OF ABBREVIATION

PMINT	Perbadanan Memajukan Iktisad Negeri Terengganu
PB Sentral	Paya Bunga Sentral
KP Perdana	Kubang Parit Perdana
CONQUAS	Construction Quality Assessment System
CIS	Construction Industry Standard
PPE	Personal Protective Equipment
CIDB	Construction Industry Development Board
CCC	Certificate of Completion and Compliance
CPC	Certificate of Practical Completion
UBBL	Uniform Building by Law
CREAM	Construction Research Institute of Malaysia

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CHAPTER 1.0

PREFACE

1.1 INTRODUCTION

A practical training course is compulsory to be taken by all the fifth semester UiTM Diploma in Building students. This training will enable the students to apply the theory learned in the class to the real life situation. Although the theory may be different from the real world but it can help the students to explore the process of building construction.

I underwent my training at Perbadanan Memajukan Iktisad Negeri Terengganu (PMINT). PMINT is responsible as the main development agency of the state of Terengganu including the urban development. I was placed at PB Sentral and KP Perdana sites.

At both sites, there was an assessment conducted known as QLASSIC. QLASSIC means Quality Assessment System in construction. It needs to be done in architectural works-finishes. The QLASSIC was initiated by CIDB to become the nation's Construction Industry Standard (CIS). Every building undergoing the QLASSIC will be examined by CIDB based on the quality of the works.

1.2 OBJECTIVE

The objectives of this report are:

- To identify the defects of the architectural works.
- To describe the methods or process of QLASSIC.
- To determine the good practices for better QLASSIC score.

1.3 SCOPE OF STUDY

This study focuses on QLASSIC that is be used in the construction works especially the architectural works. The quality of the works is able to be determined by applying the QLASSIC on the project. Some construction companies they do not use the system due to the certain factors (refer to Appendix H).

According to the purposes of QLASSIC, it exposes the best quality performance of works to the involved parties like the client, contractor, consultant, and buyer. All of the works must follow the Construction Industry Standard (CIS 7: 2006) as the standard to get the first-rate quality of the building construction works. The score that will be given by CIDB will determine the quality of the works and at the same time it can improve the reputation and ability of the company.

The outline of guidelines by CIDB can be the reference for the construction company and also as the good practices to get the best score. Along with the progress and sophistication of technology, the Q-LASSIC system must be promoted and be adopted by all the construction projects.



Figure 1.0: Logo of QLASSIC.

Source: cidb.gov.my (2012).

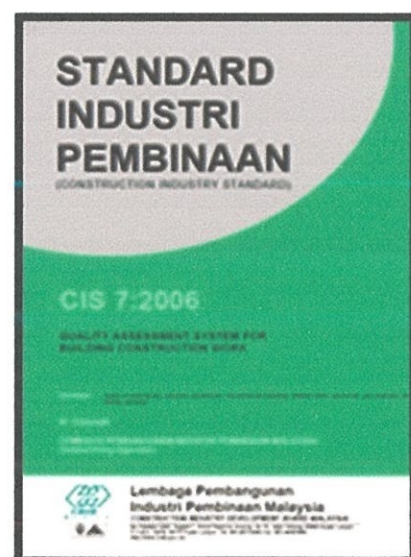


Figure 1.1: CIS 7: 2006.

Source: cidb.gov.my (2012).

1.4 METHOD OF STUDY

a) Books

The books are the primary method to obtain the information. The theory from the books is used as my reference. It gives the illustration of the QLASSIC system.

b) Observation

The observation method is the alternative method for collecting the information. By this method, I can observe by myself the QLASSIC system that is applied at the site and it provides more understanding to me to learn about the system.

c) Interview

The interview has been done at the sites and office. A few of the staff and workers were involved in the interview to collect the data. The results of interview were recorded and be used as the additional data for the QLASSIC system.

d) Internet

The information collected for this report is also sourced from the internet. The internet is a technology that can enhance and complement the available data in the real world of construction.

CHAPTER 2.0

COMPANY BACKGROUND

2.1 INTRODUCTION OF COMPANY

Perbadanan Memajukan Iktisad Negeri Terengganu (PMINT) was established on 1 April 1965, under an enactment of the Terengganu State Government as a main development agency. PMINT's roles are as the leader and implementer of socio-economic development including urban development.

A 14 storeys PMINT tower was built and completed in 1988. The area of this building is 0.71 acres. The tower is located at the crossroads between Jalan Sultan Ismail and Jalan Masjid Abidin. It was a pioneer in that area and also the administrative offices were placed in this tower.

In 1990, the WISMA PMINT was built next to the PMINT tower. This 10 storeys building is 0.15 acres and situated on the edge of Jalan Sultan Ismail. It provides the offices for rent. In 1995, the 6 storeys shopping complex which is known as PB plaza was constructed to provide opportunities to the local business community. In accordance with the upgrading of Kuala Terengganu to a city status in 2008, PMINT took the initiative to make MEDAN PMINT as a new landmark in the city central.

PMINT was involved in many activities on a wide scale which cover almost all economic sectors. The sectors include development of property and land, farm, aquaculture, production and services. As a conclusion, the activities in PMINT were performed in two ways, directly and by companies under PMINT.

2.2 COMPANY PROFILE

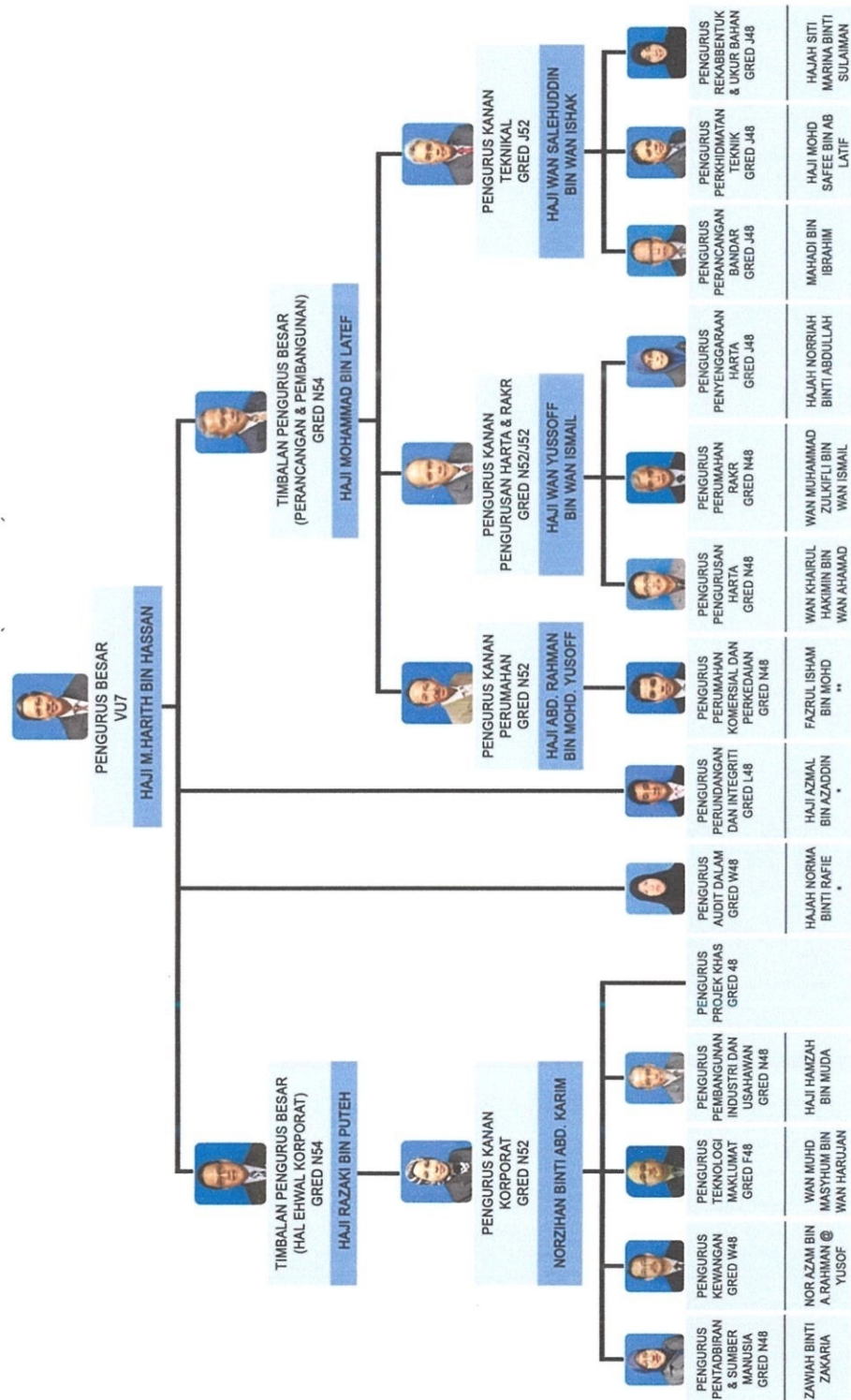


Figure 1.2: Logo of PMINT

Source: pmint.gov.my (2012).

Name of Company	: Perbadanan Memajukan Iktisad Negeri Terengganu
Address	: Tingkat 14 Menara Permint, Jalan Sultan Ismail, 20200 Kuala Terengganu, Terengganu Darul Iman.
Telephone & Fax No.	:
Email	: admin@pmint.gov.my.
Date of establishment	: 1 April 1965
Vision	: To be a main leader, generator, and contributor to the country's socio-economic development
Mission	: To develop a variety of sources and sectors for the economic development of Negeri Terengganu towards prosperity
Motto	: "KEPERLUAN & KEPUASAN PELANGGAN KEUTAMAAN KAMI"
Objective of Establishment	: - To eradicate the poverty. - To increase the economy activities. - To initiate the urban and rural development.

2.3 ORGANIZATION CHART



NOTA:
 * SECARA PENTADBIRAN ADALAH DI BAWAH JABATAN HAL EHWAL KORPORAT
 ** UNIT EKSPLORASI DI BAWAH TANGGUNGJAWAB BAHAGIAN PERUMAHAN KOMERSIAL & PERKEDAAN
 Dipinda pada 28/01/2015

Figure 1.3: Organization of PMINT

Source: pmint.gov.my (2015).

2.4 LIST OF PROJECT

2.4.1 COMPLETED PROJECTS

1) Table 1.0: Information of 2 Storeys House

Location	Gong Badak, Kuala Terengganu
Minimum Land Area	6,835 sq ft
Minimum Price	RM 522,400.00
Unit Overall	16 units

Source: pmint.gov.my (2012).



Figure 1.4: 2 storeys house at Gong Badak.

Source: pmint.gov.my (2012).

2) Table 1.1: Information of 1 ½ Storeys IKS Terraced Workshop

Location	Kemaman
Land Area	3,434 sq ft
Floor Area	2,347 sq ft
Minimum Price	RM 438,160.00
Unit Overall	10 units

Source: pmint.gov.my (2012).



Figure 1.5: 1 ½ storeys IKS terraced workshop at Kemaman.

Source: pmint.gov.my (2012).

3) Table 1.2: Information of 1 Storey House Type A

Location	Marang
Area	1,440 sq ft
Minimum Price	RM 302,400.00
Maximum Price	RM 307,300.00
Unit Overall	3 units

Source: pmint.gov.my (2012).



Figure 1.6: 1 storey house Type A at Marang.

Source: pmint.gov.my (2012).

2.4.2 PROJECTS IN PROGRESS

1) Table 1.3: Information of 4 Storeys Shop House

Location	Dungun
Area	5,077 sq ft – 5,797 sq ft
Minimum Price	RM 192,531.00
Maximum Price	RM 446,925.00
% Current Status	86.50 %
Unit Overall	8 units

Source: pmint.gov.my (2012).



Figure 1.7: 4 storeys shop house at Dungun.

Source: pmint.gov.my (2012).

2) Table 1.4: Information of 2 Storeys Detached House

Location	Kuala Terengganu
Area	1,484 sq ft
Unit Overall	12 units

Source: pmint.gov.my (2012).



Figure 1.8: 2 storeys detached house (KP Perdana V1) at Kuala Terengganu.

Source: pmint.gov.my (2012).

3) Table 1.5: Information of 2 Storeys House

Location	Kuala Terengganu
Area	2,965 sq ft
Unit Overall	2 units

Source: pmint.gov.my (2012).



Figure 1.9: 2 storeys house (KP Perdana 4B) at Kuala Terengganu.

Source: pmint.gov.my (2012).

4) Table 1.6: Information of 2 ½ Storeys House

Location	Kuala Terengganu
Area	4,028 sq ft
Unit Overall	2 units

Source: Pmint.gov.my (2012).



Figure 2.0: 2 ½ storeys house (KP Perdana 4B) at Kuala Terengganu.

Source: pmint.gov.my (2012).

2.4.3 UPCOMING PROJECTS

1) Table 1.7: Information of 1 Storey Detached House

Location	Besut
Area	1,300 sq ft
Price	RM 260,000.00
Unit Overall	32 units

Source: pmint.gov.my (2012).



Figure 2.1: 1 storey detached house at Besut.

Source: pmint.gov.my (2012).

2) Table 1.8: Information of 1 Storey Detached House

Location	Paka, Kemaman
Area	1,184 sq ft
Price	RM 280,000.00
Unit Overall	30 units

Source: pmint.gov.my (2012).



Figure 2.2: 1 storey detached house at Kemaman.

Source: pmint.gov.my (2012).

3) Table 1.9: Information of 2 storeys terraced house

Location	Kemaman
Unit Overall	35 units

Source: pmint.gov.my (2012).



Figure 2.3: 2 storeys terraced house at Kemaman.

Source: pmint.gov.my (2012).

CHAPTER 3.0

CASE STUDY

3.1 ITRODUCTION OF PROJECT

3.1.1 PB SENTRAL

PB Sentral is a short form for Paya Bunga Sentral. It is one of the mega projects under PMINT. The project title is “ Cadangan Merancang, Merekabentuk, Membina, Menyiapkan, Menguji, Mentaliah dan Menyelenggara Pusat Rekreasi (10 Lapis) serta Kerja-kerja Berkaitan yang Mengandungi 7 Unit Lot Kedai (1 Lapis), Parking Bertingkat (6 Lapis), Bowling (1 Lapis), Cineplex (2 Lapis) di atas Lot 4133-4140, Lot 5035-5038, Lot 4145 dan Lot 3068-3071 di Jalan Tengku Embong Fatimah, Mukim Bandar Kuala Terengganu”.

PB Sentral is the continuation of the PB Square project that has been in operation since last year. PB Sentral also has a link bridge that connects with PB Square. It provides 11 cinemas including the VVIP set, 36 lanes bowling center and more than 700 lots of the multi-storey parking inside it.

This 10 storeys family recreation central project involved a construction cost of eighty nine million nine hundred sixty eight thousand five hundred seventy seven (RM 89, 968, 577.00). It takes a period of 48 weeks to complete which started on January 2, 2013 and is expected to be completed on November 7, 2015.

KIP Structure Sdn. Bhd. is the contractor which is responsible to build the whole building while AHS Architects Sdn. Bhd. is the architect firm chosen by PMINT to design this project. Perunding NFL Sdn. Bhd , as the surveyor that is in charge for

calculating the costs from the beginning to end of construction and related works. Entech Consult takes the roles as a civil and structure engineer. Their works are focused to road, beam, column, drainage, sewage and others. The works of mechanical and electrical was entrusted to Emech Consulting Engineers.



Figure 2.4: 10 storeys of PB Sentral.

Source: PMINT (2015).

3.1.2 KP PERDANA FASA 4A

KP Perdana is a short form for Kubang Parit Perdana. It is the projects of residential houses and it was built according to the phases. The project title is “ Cadangan Membina dan Menyiapkan 10 unit Rumah Berkembar 2 Tingkat di atas Lot PT 1651 hingga PT 1660 Serta Kerja-kerja Berkaitan di KP Perdana Mukim Kubang Parit, Kuala Terengganu (Fasa 4A)”.

KP Perdana Fasa 4A has two types of detached houses, which are Type D and Type E. There are 4 houses of Type D and 6 houses of Type E. This project is the continuation of the previous phases and will be continue until phase 6. The designs of both types are same as the type of houses from the previous phases.

For this project, it takes a period of 48 weeks to complete which started on September 2, 2014 and is expected to be completed on August 3, 2015. In addition, the contractor has been issued 3 months of Extension of Time (EOT) for this project because of some problems on the sites. The new date which is expected to be completed is on November 3, 2015.

The contractor who is responsible to build the whole building is SEZ Prima Sdn. Bhd. The designing works is done by Arkitek Aliran Cipta firm. W & K Perunding Ukur Bahan, is the surveyor who is liable for calculating the overall costs of project and related works. Mohd Asbi & Associates is in charge of the civil and structural works. The electrical works is handed over to Emech Consulting Engineers.



Figure 2.5: 2 storeys detached house Type D (KP Perdana 4A) at Kuala Terengganu.

Source: pmint.gov.my (2012).



Figure 2.6: 2 storeys detached house Type E (KP Perdana 4A) at Kuala Terengganu.

Source: pmint.gov.my (2012).

3.2 CASE STUDY

3.2.1 GENERAL

3.2.1.1 INTRODUCTION OF QCLASSIC

QCLASSIC is the acronym for quality assessment in construction. It is a system to evaluate the workmanship quality of building construction works. QCLASSIC is conducted based on the construction industry standard (CIS 7:2006). It was introduced by CIDB in 2006 to assess the quality of building construction works. Before this, the quality is assessed by Unit Penyelarasan Pelaksanaan (ICU). This system has the same practices as the system from Singapore which known as CONQUAS in evaluating the quality in the building works. Both of them provide the good practices for the contractors, client, buyers and others. It is a helpful system to get the high scores.

3.2.1.2 ARCHITECTURAL WORKS

This report is focussed to the architectural works. The architectural works is more on the finishes. The quality of finishes will influence the whole aesthetic value of building. It covers the works as follows:

- Internal and external walls
- Ceiling
- Door
- Window
- Fixtures and fittings
- Floors
- Roofs
- Driveway
- Porch

3.2.1.3 BENEFIT OF QLASSIC

The benefits of QLASSIC can be stated as follows:

- Complete quality system
- Improve the developer's credibility
- Increase the competition
- Adaptable for all of projects
- As a guarantee to buyers
- Resolve the defect and others problem



Photo 1.0: PB Sentral is one example of the public building construction that used QLASSIC.



Photo 1.1: KP Pedana Fasa 4A housing construction.



Figure 2.7: The elements of building which are used the QLASSIC.

Source: currebtbuzz.my (2015).

3.2.1.4 COMPONENT

QLASSIC contains the standard on quality for the various components. The components can be divided into four components which are architectural, structural, mechanical and electrical (M & E) and external works. Every component has their elements that will be evaluated by sampling method or assessment in sites.

3.2.1.5 ASSESSOR

The assessor must be trained and who have passed the training needed to register with CIDB to become the official assessor. Every assessor must prepare themselves by getting ready on the information related to QLASSIC. The assessor has good attitude if they have sensitivity to their surroundings. They must wear the Personal Protective Equipment (PPE) such as safety helmet and safety boots. It may also be able to convince the users of QLASSIC that the assessor of their projects is the qualified assessor.

- PMINT Assessors

1) Name: Mohd Zaidi Bin Abdul Rahman (main assessor)

Position: Civil Engineer

Services period: 13 years

Experience:

- Handling the QLASSIC for PMINT projects.
- The latest involvement is in the housing project.

2) Name: Abdul Wafa Bin Muhammad

Position: Architect Assistant

Services period: 4 years

Experience: -

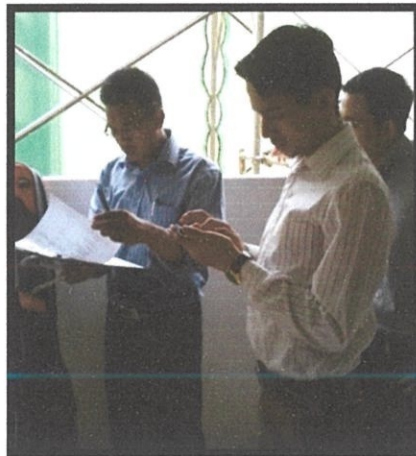
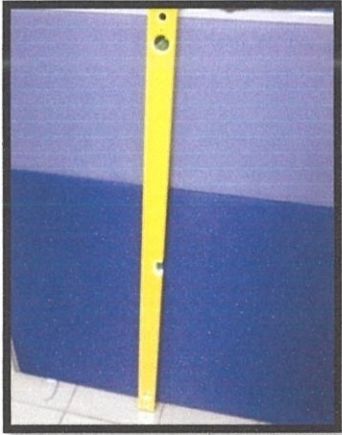



Photo 1.2: PMINT's assessors.

3.2.1.6 EQUIPMENT OF QLASSIC

Table 2.0: List of QLASSIC equipment and their functions

Equipment	Function
<p>a) Spirit Level</p>  <p>Photo 1.3: Spirit level (1m)</p>	<ul style="list-style-type: none">• To determine the vertically and evenness.
<p>b) Tapping rod</p>  <p>Photo 1.4: Tapping rod</p>	<ul style="list-style-type: none">• To identify the hollowness of wall, column, floor and tiles.

c) Measuring Tape



Photo 1.5: Measuring tape (3.5m)

- To measure the length.

d) Tapping Rod



Photo 1.6: Mirror

- To check the paintwork above and under of door.

e) L Square

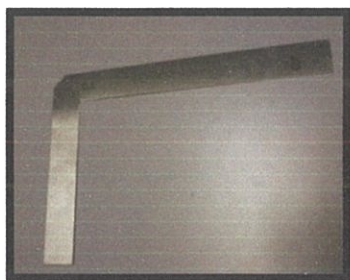


Photo 1.7: L square

- To measure the squareness.

f) Plumb Bob

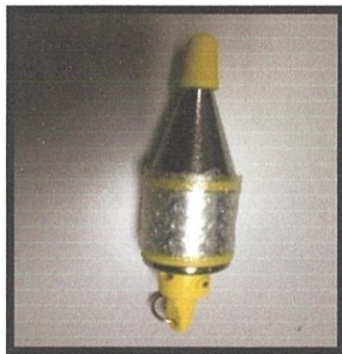
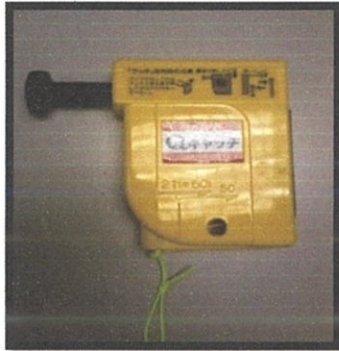


Photo 1.8: Set of plumb bob

- To determine the verticality.

g) Calliper



Photo 1.9: Calliper

- To measure the gap between the two opposite sides.

3.2.2 DEFECTS OF THE ARCHITECTURAL WORKS

3.2.2.1 IMPROPER FALL GRADIENT FOR TOILET FLOOR

For the toilet, the floors must have the proper gradient of fall to allow water to flow smoothly into the pipes and then to the manholes. As often happens, the inappropriate gradient will cause the water to flow back to the toilet and stagnant waste water may occur. For this situation, the solution is the floor must be constructed again.

3.2.2.2 CRACKS

a) Plaster

The plastering work is focused to the wall. It is a type of finishes which has functions for smoothing and covering the rough surface of concrete. It also helps to ease the painting work. The plaster used in the construction can be divided into two types, which are skim coat powder and plaster lime (in liquid form). To prevent excessive layers of plaster on the surface, the application must be done by the skilled workers. A thick layer of plaster can cause cracks on it. The best way to overcome this defect is by applying a thin layer of plaster which is enough to ensure it being covered.

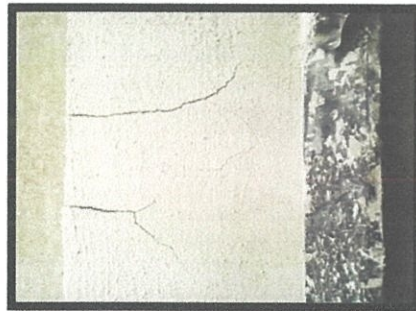


Photo 2.0: Cracks on the wall surface.

b) Wall

The crack or break on the wall could be due to vandalism committed by employees. For them, everything they do is for entertainment that will not give any effect but in fact it can impair the quality of work. As the result, the cost to repair the damage is a loss to the contractor.



Photo 2.1: Damaged wall.

3.2.2.3 UNEVEN SURFACE

It is the commonest defects that happen in the construction works. The uneven surface will appear bad visually and can lead the building into the risks, it usually will be hacked down for repair process. This is to prevent the differences in dimension as stated in the construction drawings. The works must be monitored by the supervisor. The evenness of floor can be measured by using the spirit level.

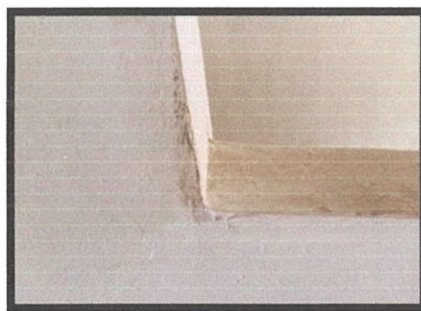


Photo 2.2: Uneven surface at the wall angle.

3.2.2.4 HOLLOWNESS

a) Concrete wall and floor

The hollowness is produced when air is trapped in the concrete. One of the reasons that leads to the hollowness is the concrete was not vibrated or compacted completely. The hollow sound can be detected by using the special QLASSIC tool that is known as a tapping rod.



Photo 2.3: Honey comb on the concrete.

b) Tiles

The tiles are mostly used on the wall and floor. If the grout cement or mortar was not notched by trowel before tapping the tiles or the tiles was not tapped by the rubber mallet, the tiles and the grout cement cannot be jointed to each other. Then, it leads to the hollowness sound. The aesthetic value of the building depends on the quality of tiles installation because it can be determined whether it appears good or not visually.



Photo 2.4: Hollowness at the tiles joint.

3.2.2.5 EXCESSIVE CONCRETE

This situation may happen during pouring process of the concrete into the formwork. The concrete may flow out from the formwork. There are some reasons that lead to the leaking of the formworks such as the formwork was not installed in the correct way and the timber that was used to build the formwork were in bad conditions.



Photo 2.5: Dirtied wall surface with the excessive concrete.

3.2.2.6 FAILURE IN PAINT WORKS

Painting was done after the plaster dries completely. There are 3 layers of paint which must begin with the skim coat, the first coat of colour paint and finally a second layer of colour paint. Before starting the next coat, make sure the previous coat is dried thoroughly. If these steps are not being practiced, the probability of failure in painting is high. It will be cracked, peeled, blistered, chalked, fungi infected and so on. It is usually due to works by unskilled workers.

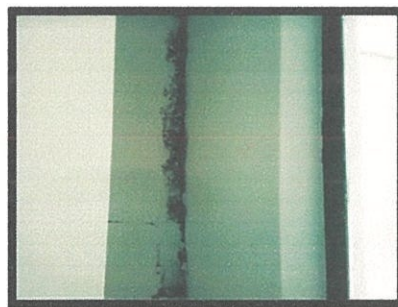


Photo 2.6: Uncompleted paint due to the bad conditions of surface.

3.2.2.7 NOT ACCORDING TO SPECIFICATIONS

Staircases

The stairs act as an escape route in case of any emergency in the building. The stairs has been designed to suit the types of building and its activities. In the construction, the stairs being constructed with the dimensions of treads too small compared with the biggest foot size of humans while the dimension of the rise being too high. The stairs that are not in accordance to the specifications like UBBL 1984 are not safe to be climbed. This is due to the potential of danger and risks.

- **Nosing of stair steps**

A nosing tile is located at the end of each stair treads. The stair with the nosing is capable of providing safety during climbing of the stair due to its ability of gripping the shoes. The inappropriate material of nosing can cause the users to slip. The joint between the nozzle and treads of stair must also be taken in consideration to avoid any accidents and at the same time to provide a good quality work.



Photo 2.7: The suitable material of nosing (non-slip tile).

3.2.3 THE LOW USAGE OF QLASSIC

3.2.3.1 FACTORS OF THE LOW USAGE OF QLASSIC

There are some factors which can give effects to the low usage of QLASSIC. It is as follows:

- Attitude of fly-by-night contractor
- Effect of Low Score
- Lack of Awareness

a) Attitude of fly-by-night contractor

Now, the construction sector is driving the great economy and has generated extensive job opportunities. The contractors whether government or private are expecting to double their profits in each of their projects. The quality of the construction is often overlooked by them because they consider it as the risky things.

b) Effect of low score

The score of QLASSIC that is given to the contractors will determine the quality of the project whether good or bad quality. On first usage of QLASSIC, it is usually they get the low scores. The contractors think too much and believe that low scores in the assessment of QLASSIC will leave a big impact to reputation of their company.

According to CIDB, (n.d), there are a few of factors which are contributed to the low scores. The factors as follows:

- Lack of time to complete the construction works.
- Underexposure of quality.
- Lack of skilled workers.
- Problems due to project management.
- Building design.

c) Lack of awareness

The lack of awareness is the main factor of not using QLASSIC. The awareness about the importance of understanding and knowledge of QLASSIC not only refers to the contractors but also to the buyers. They do not receive the clear disclosure. On behalf of the contractors, they are mostly unfamiliar with the assessment of QLASSIC. Besides that, the attitude of easy acceptance by the buyer also is the big problem which often happens in the society. They are not sensitive to their rights that they can be demand for the better house.

3.2.3.2 SOLUTIONS TO THE LOW USAGE OF QLASSIC

Every problem has the solution. The application of QLASSIC in the projects of construction can be improve by many ways. Some actions have been done and some will be done in the future. The solutions as the following:

- Exposure of QLASSIC by medias
- Training and workshop
- QLASSIC as a requirement for the Certificate of Completion and Compliance (CCC)

a) Exposure of QLASSIC by medias

The medias especially media electronic are the best and fastest medium to publish the information of QLASSIC. Among the medias that can be use are internet, radio, television, magazines and more. There is much information on QLASSIC in the internet that can be searched and obtained by the parties in the field of construction or the public. CIDB has also taken the proactive action in developing the usage of QLASSIC by revealing it in their web which is known as CIDB Malaysia.



Figure 2.8: QLASSIC Press Conferences.

Source: currentbuzz.my (2015).

b) Training and workshops

CIDB has conducted various QLASSIC training to provide and expose more detailed information about QLASSIC (refer to Appendix G). They also support the efforts of the other companies which held the workshops for QLASSIC. These companies also contribute to the development of publicizing the QLASSIC. The training and workshops are effective because the participants can learn more closely and directly of the assessment that will be conducted.



Figure 2.9: Training and workshop participants.


Source: PMINT (2015).

c) QLASSIC as a requirement for the Certificate of Completion and Compliance (CCC)

Because of the awareness is still low among them, CIDB intends to make QLASSIC as the requirement element for those who want to get the Certificate of the Completion and Compliance (CCC) for their projects. The contractor must submit the CCC form together with accreditation from QLASSIC. This action is to ensure every project that gets the CCC are the projects that meets the standards and have the best quality of the works.

3.3 METHOD STATEMENT

3.3.1 ASSESSMENT METHOD OF QLASSIC

NO.	OPERATION	METHOD	DIAGRAM/ APPENDIX
1.	Internal assessment of QLASSIC	<p>- During construction, the client is responsible to carry out the internal assessment.</p> <p>- This assessment is the same as the final assessment.</p> <p>- The comment of work quality is recorded by the client in the QLASSIC form and will be informed to the contractor by a memo or other methods of communication.</p> <p>The purposes of this assessment are:</p> <ul style="list-style-type: none"> • To ensure the contractor conduct their works in the best quality. • To help the contractor to get the higher score in the final assessment of QLASSIC. 	 <p>Photo 2.8: QLASSIC briefing.</p>

		<ul style="list-style-type: none"> • To expose the methods of QLASSIC that will be carry out by CIDB. <div data-bbox="320 309 692 680" data-label="Image"> </div> <p data-bbox="724 271 815 730">Photo 2.9: Checking the hollowness for the floor.</p> <div data-bbox="837 309 1197 680" data-label="Image"> </div> <p data-bbox="1227 255 1318 719">Photo 3.0: Checking the hollowness on the wall.</p>
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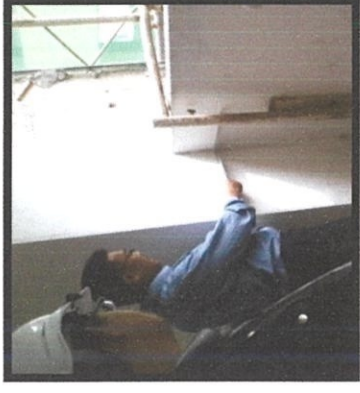




Photo 3.1: Checking the angle between a column and wall.

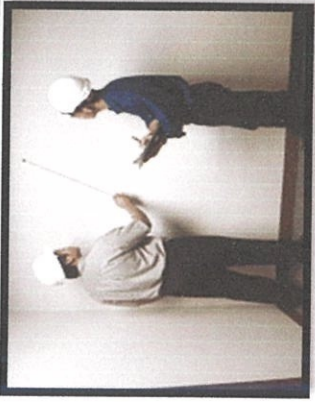
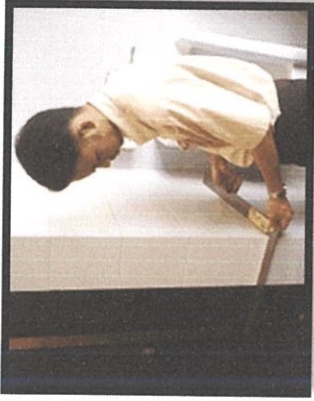


Photo 3.2: Checking the dimensions of a tread and rise of stair.

			 <p>Photo 3.3: The democratization of the correct way to use the mirror.</p>
2.	Renovation by the contractor	<ul style="list-style-type: none"> - The contractor must correct all the defects and elements which have been assessed by the client. 	
3.	Second internal QLASSIC by the client	<ul style="list-style-type: none"> - The client will assess again to ensure the contractor did the renovation and improvement to the quality of the construction works. - Continuous renovation works may happen if the works qualities not reach the client's standards and requirements. 	

4.	Certificate of Practical Completion (CPC)	<ul style="list-style-type: none"> - After the client is satisfied the overall works has being completed, the project is handed over to the client and the contractor will be award CPC. - The CPC is issued by the client. 	
5.	Application of QLASSIC	<ul style="list-style-type: none"> - Apply the QLASSIC from CIDB. - They will be charged RM 500 for each assessment. - The client must submit the QLASSIC form together with the construction drawings. 	Refer to Appendix D for QLASSIC form
6.	Pre-QLASSIC	<ul style="list-style-type: none"> - At this stage, the assessment does not involve all of the building works but only part of them. - It also known as a sampling stage where the samples are selected by CIDB from the drawings. - The drawings are normally the architectural drawings. - 30 samples are the sufficient amount for sampling process. These 30 samples will be chosen randomly by the assessor. 	Refer to Appendix E for sampling guidelines of architectural works

		<ul style="list-style-type: none"> - The sampling process is carried out by the CIDB and the result will be ⁵²not informed to the client or contractor (undisclosed assessment). 	
7.	Final QLASSIC	<ul style="list-style-type: none"> - The final assessment will be assessed by the assessor who was appointed by CIDB. - The works that have been assessed and have been repaired will not be assessed again. - CIDB uses the principle of “Do Things Right the First Time and Every Time” to encourage the contractors. - The score will be rewarded to project that applied the QLASSIC. 70 % is a pass score of assessment. - As the appreciation for using QLASSIC, the certificate also will be given and the score of quality obtained is written in that certificate (refer to Appendix G). 	 <p>Figure 3.1: Checking the evenness of wall surface. Source: cidb.gov.my (2012).</p>

	<p>PMINT as the client takes the following actions to QLASSIC score. The actions as the following:</p> <p>a) Score higher than 70%</p> <ul style="list-style-type: none"> - Gives the incentive to the contractor as motivate and support to their works. - The incentive in the form of 1% of the preliminaries cost (RM). <p>b) Score less than 70%</p> <ul style="list-style-type: none"> - Suspended to involve in any PMINT projects for 2 years. - Penalty, cut 1% of preliminaries cost (RM). 	 <p>Figure 3.2: Checking the hollowiness for internal walls. Source: cidb.gov.my (2012).</p>
		 <p>Figure 3.3: Checking the straightness of the angle for internal walls. Source: cidb.gov.my (2012).</p>

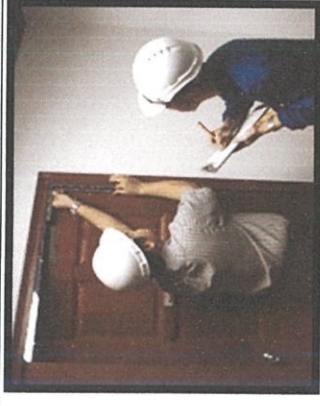


Figure 3.4: Checking the angle for a door frame.

Source: cidb.gov.my (2012).



Figure 3.5: Inspecting falls in wet areas.

Source: cidb.gov.my (2012).

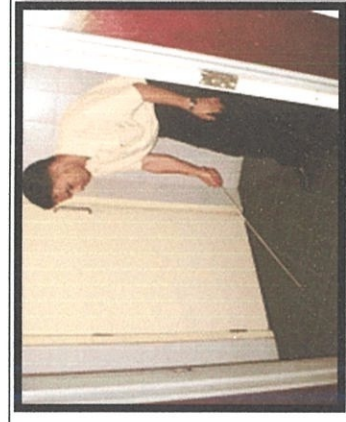



Figure 3.6: Checking the hollowness for floor.

Source: cidb.gov.my (2012).

3.3.2 METHOD OF CONSTRUCTION WORKS TO GET BETTER SCORE IN QCLASSIC

3.3.2.1 FLOOR TILING

NO.	OPERATION	METHOD	SEQUENTIAL/ DIAGRAM	PLANT/ EQUIPMENT	MANPOWER	GOOD PRACTICES
1.	Grooving the cement grout or an adhesive	<ul style="list-style-type: none"> - Spread the cement grout or adhesive to a small part of floor area. - Groove it to ensure the joints between the tiles and cement grout will align. 	 <p>Photo 3.4: Grooving the cement grout.</p>	- Notched trowel	2 unskilled labour	<ul style="list-style-type: none"> - Lippage between two tiles are not more than 1 mm.



2.	Tiling	<ul style="list-style-type: none"> - Measure the height of skirting. - Tap the tiles firmly onto uniform position of skirting and floor. - Check the level of tiles. - Use plastic spacer(2-3 mm) at all joints. 	 <p>Photo 3.5: Skirting</p>  <p>Photo 3.6: Place the tiles into the position.</p>	<ul style="list-style-type: none"> - Rubber mallet - Spirit level - Measuring tape 	<ul style="list-style-type: none"> - 1 skilled labour - 2 unskilled labour 	<ul style="list-style-type: none"> - Top of tiles skirting to be level, neat and consistent. - Joints are aligned between tiles and consistent in size.
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Photo 3.7: Tap the tile by using a rubber mallet.

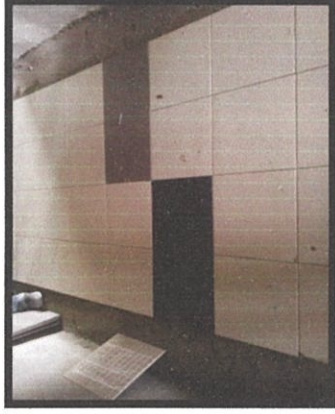
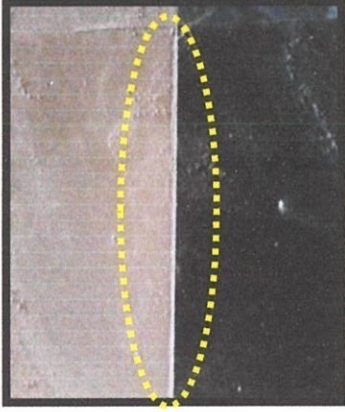



Photo 3.8: The completed floor tiles.

3.	Grouting	<ul style="list-style-type: none"> - Spread the grout to fill the tiles joints completely. - Remove the excess grout. - Clean the tiles surface. 	 <p>Photo 3.9: Grout between the opposite tiles.</p>	<ul style="list-style-type: none"> - Soft trowel - Damp cloth/sponge 	<ul style="list-style-type: none"> - 1 skilled labour - 2 unskilled labour 	<ul style="list-style-type: none"> - Consistent in colour tone of tiles and grout.
4.	Protecting the tiles surface	<ul style="list-style-type: none"> - Prohibit the traffic on new tiles flooring after installation for at least 10 days. - Provide the cover during the construction period to avoid stain or damage. 	 <p>Photo 4.0: Cover the floor by using the plywood.</p>	Plywood	2 unskilled labour	<ul style="list-style-type: none"> - No cracks, scratches, chips, stains and hollowness of tiles.

3.3.2.2 DOOR INSTALLATION


NO.	OPERATION	METHOD	SEQUENTIAL/ DIAGRAM	PLANT/ EQUIPMENT	MANPOWER	GOOD PRACTICES
1.	Installing the frame	<ul style="list-style-type: none"> - Check the location and dimensions of frame as specified in the drawings. - Align the frame against the setting out lines. - Secure the temporary timber to support the frame. - Fasten the frame in position by using the galvanised straps. - Grout the gap between the wall and frame. 	 <p>Photo 4.1: Check gradient of the frame by using the spirit level.</p>	<ul style="list-style-type: none"> - Measuring tape - Level pegs - Spirit level - Datum 	<ul style="list-style-type: none"> - 1 skilled labour - 3 unskilled labour 	<ul style="list-style-type: none"> - Free from the corrosion, hollow and discolorations. - Frame corners are maintained at right angles. - Alignment and consistency in parallel, to be test and square. - Neat joints. - Good paintwork.




Photo 4.2: Timber as the temporary supporter of frame.



Photo 4.3: Connect the wall and frame by using the straps.

2.	Installing the door panel	<ul style="list-style-type: none"> - Check the panel from the drawings. - Install the panel into the position. - Fasten the hinges to connect the frame and panel. 	 <p>Figure 3.7: Installing the door. Source: PMINT (2015).</p>  <p>Photo 4.4: Hinges</p>	<ul style="list-style-type: none"> - Measuring tape - Electrical screw driver 	<ul style="list-style-type: none"> - 1 skilled labour - 3 unskilled labour 	<ul style="list-style-type: none"> - Panel is free from damage, scratch and stain mark. - Consistent gap between the panel and frame. - Neat joints. - No noisy sound and easy when opening and closing. - Good paintwork, including top and bottom of panel. - Smooth and even surface.
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3.	Installing the lockset to door panel.	<ul style="list-style-type: none"> - Fasten the lockset to the panel. - Check the correct type and size used. - Conduct a simple functional test of closing and opening the door. 	 <p>Photo 4.5: Fastening the lockset of door.</p>	<ul style="list-style-type: none"> - Electrical screw driver 	<ul style="list-style-type: none"> - 1 skilled labour - 1 unskilled labour 	<ul style="list-style-type: none"> - Well-designed lockset. - Lockset fit well. - No sign of corrosion, defect and discoloration in ironmongery.
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CHAPTER 4.0

CONCLUSION

4.1 CONCLUSION

Based on the study, there are two aspects that can be listed as the factors or causes of the low quality in construction works. These aspects cover all of:

- Defects occur on finishing works.
- Low usage of QLASSIC.

The results of application QLASSIC on the PB Sentral and KP Perdana sites showed that the works performed by the contractor can still be improved. The supervisor who was appointed by the contractor was not responsible enough. They do not monitor the works carried out by the workers whether based on the standards or not.

Safety is very important when conducting the QLASSIC at the site. But, during the internal assessment of QLASSIC, the assessor did not wear the personal protective equipment like safety helmet and safety boots. As the results, they are exposed to the danger which may come from the large machineries, sharp materials, dusty environment and so on.

The methods used by PMINT to encourage the usage of QLASSIC in their projects are the best ways. They gave the initiative to contractors that got the high score in QLASSIC and gave the penalty to contractors which got the low score. These good methods should be taken as an example by the other companies. The hopes for PMINT to continue introducing the QLASSIC to their new parties that will be involved in their projects and make it the requirement for those have been used the QLASSIC.

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APPENDIX

PERBADANAN MEMAJUKAN IKTISAD NEGERI TERENGGANU

CADANGAN MERANCANG, MEREKABENTUK, MEMBINA, MENYIAPKAN, MENGUJI, MENTAULIAH DAN MENYELENGGARA PUSAT REKREASI (10 LAPIS) YANG MENGANDUNGI 7 UNIT LOT KEDAI (1 LAPIS), PARKING BERTINGKAT (6 LAPIS) PUSAT BOWLING (1 LAPIS), CINEPLEX (2 LAPIS) SERTA KERJA – KERJA BERKAITAN DI ATAS LOT 4133 – LOT 4140, LOT 5035 – LOT 5038, DAN LOT 3068 – LOT 3071, DI ATAS JALAN TENGKU EMBONG FATIMAH, MUKIM BANDAR, KUALA TERENGGANU



MAKLUMAT PROJEK

NO KONTRAK	: 1/2013
NILAI KONTRAK	: RM 89,968,577.00
TARIKH SETUJU TERIMA	: 9 JANUARI 2013
TARIKH MILIK TAPAK	: 27 JANUARI 2013
TARIKH SIAP ASAL	: 07 NOVEMBER 2015
TARIKH SIAP SEMASA	: 11 APRIL 2016

Cadangan Merancang, Merekabentuk, Membina, Menyiapkan Menguji, Mentaliah Dan Penyelenggara Pusat Rekreasi (10 Lapis) Yang Mengandungi 7 Unit Lot kedai (1 Lapis), Parking Bertingkat (6 Lapis), Bowling (1 Lapis), Cineplex (2 Lapis) di atas Lot 4133-4140, Lot 5035-5038, Lot 4145 Dan Lot 3068-3071 Di Jalan Tengku Embong Fatimah, Mukim Bandar, Kuala Terengganu, Terengganu.

UNTUK PERBADANAN MEMAJUKAN IKTISAD NEGERI TERENGGANU

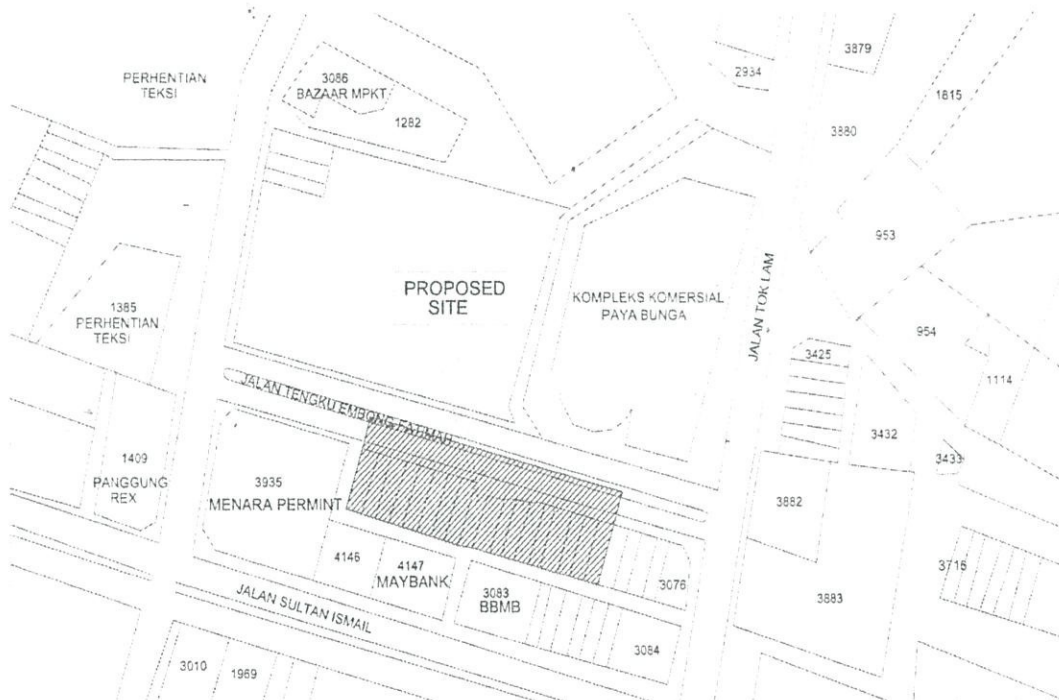
MAKLUMAT KONTRAK

NO KONTRAK	: 1/2013
NILAI KONTRAK	: RM 89,968,577.00
TARIKH SETUJU TERIMA	: 9 JANUARI 2013
• No. Ruj	:
TARIKH MILIK TAPAK	: 27 JANUARI 2013
TARIKH SIAP ASAL	: 07 NOVEMBER 2015
TARIKH SIAP SEMASA	: 11 APRIL 2016 (EOT 1)
TEMPOH KONTRAK ASAL	: 145 MINGGU
TEMPOH KONTRAK (SEMASA)	: 167 MINGGU (EOT 1)
TEMPOH PENYELENGARAAN	: 2 THN, 3 BLN, 28 HARI
NO. PENDAFTARAN JKPP	: TG/13/03/1802
INSURAN	: CONTRACTOR'S ALL RISKS (CAR)
• No. Polisi	: TECR-PC655604-BRTEKTG
• Tempoh Insuran	: 27/01/2013 - 07/11/2015
• Tempoh Selenggara	: 08/11/2015 - 21/02/2018
	: WORKMEN COMPENSATION
• No. Polisi	: TLWC-PC656660-BRTEKTG
• Tempoh Insuran	: 27/01/2013 - 07/11/2015
• Tempoh Selenggara	: 08/11/2015 - 21/02/2018
NO. PENDAFTARAN PERKESO	: F8204528

Cadangan Merancang, Merekabentuk, Membina, Menyiapkan, Menguji, Mentauliah, Dan Menyelenggara Pusat Rekreasi (10 Lapis) Yang Mengandungi 7 Unit Lot kedai (1 Lapis), Parking Bertingkat (6 Lapis), Bowling (1 Lapis), Cineplex (2 Lapis) di Jalan Tengku Embong Fatimah, Kuala Terengganu.

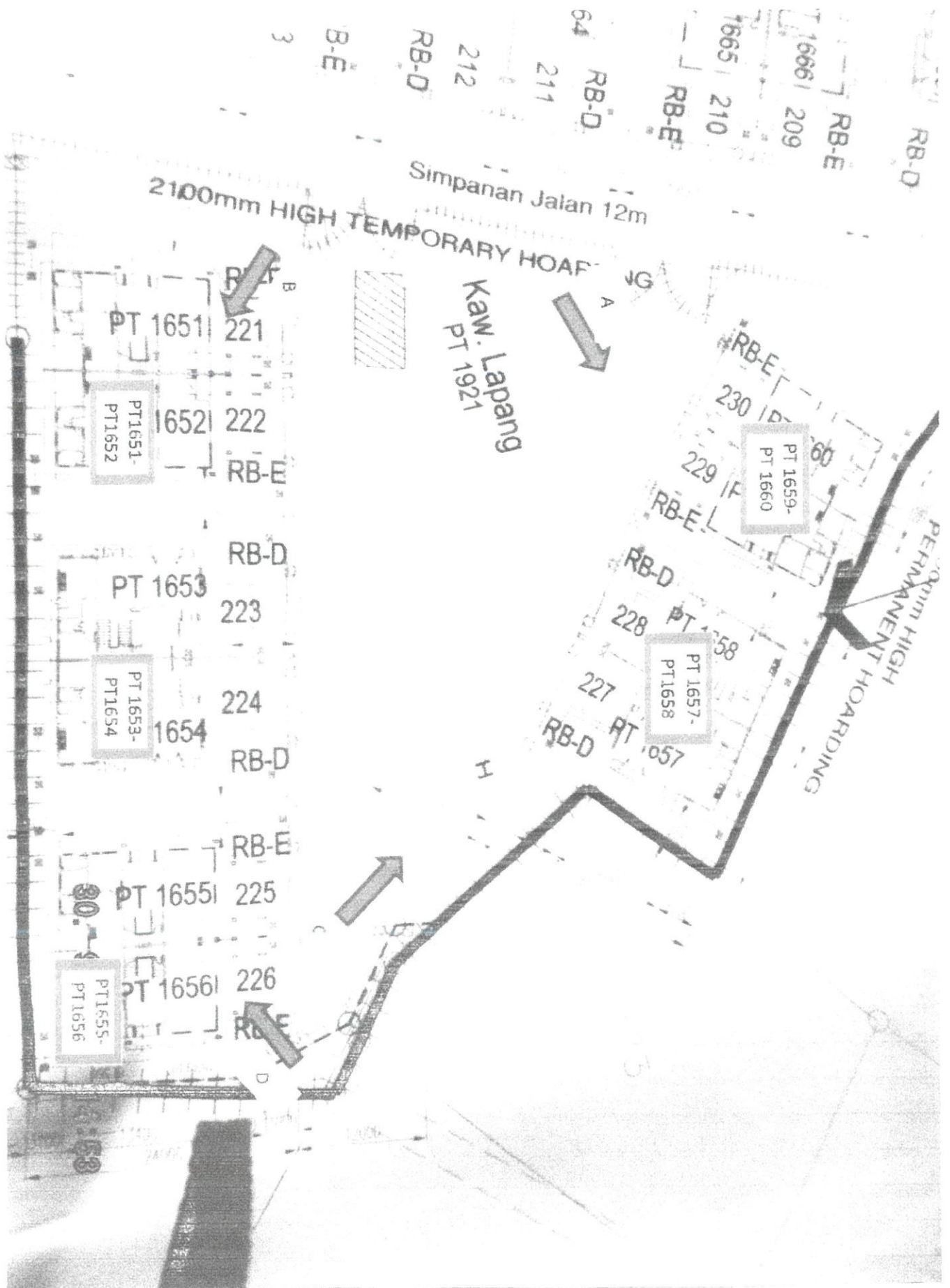
UNTUK PERBADANAN MEMAJUKAN IKTISAD NEGERI TERENGGANU

PELAN LOKASI



Appendix B: Project information of KP Perdana Fasa 4A

Nama Projek		: Membina & Menyiapkan 10 Unit Rumah Berkembar 2 Tingkat Di Atas Lot PT1651-PT1660 Serta Kerja-Kerja Yang Berkaitan Di KP Perdana Mukim Kubang Parit Kuala Terengganu. (FASA 4A)
Harga Kontrak		: RM 2,385,000.00
Tempoh Kontrak		: 48 Minggu
Tarikh Milik Tapak		: 02hb September 2014
Tarikh Siap Kerja Asal		: 03hb Ogos 2015
Tarikh Siap Kerja (Pindaan)		:
Tempoh Liability		: 24 BULAN
Kecamatan / LAD		
Benda Kelewatan		: RM 1300/hari
No Polisi Insurans		
Contractor All Risk)		: TERC-PD121404-BRTEKTG
Bon Pelaksanaan		: 05 % Dari Nilai kontrak



STANDARD INDUSTRI PEMBINAAN

(CONSTRUCTION INDUSTRY STANDARD)

CIS 7:2006

**QUALITY ASSESSMENT SYSTEM FOR
BUILDING CONSTRUCTION WORK**

Descripton: quality of workmanship, structural, architectural, mechanical and electrical, external works, benchmark, site inspection, field testing, sampling

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LEMBAGA PEMBANGUNAN INDUSTRI PEMBINAAN MALAYSIA
Standard Writing Organisation



**Lembaga Pembangunan
Industri Pembinaan Malaysia**

CONSTRUCTION INDUSTRY DEVELOPMENT BOARD MALAYSIA

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QUALITY ASSESSMENT SYSTEM FOR BUILDING CONSTRUCTION WORK

SECTION 1: GENERAL

1.1 Introduction

Quality Assessment System for Building Construction Work is an independent method to assess and evaluate the quality of workmanship of building projects based on this standard.

1.2 Normative references

The following normative reference is indispensable for the application of this construction industry standard. For dated reference, only the edition cited applies. For undated reference, the latest edition of the normative reference (including any amendments) applies.

Uniform Building By-Law 1984.

1.3 Definition

For the purpose of this Construction Industry Standard the following definitions apply.

1.3.1 QLASSIC is the acronym for quality assessment system in construction.

1.3.2 Component

General building works are divided into four different components: structural, architectural, mechanical and electrical (M & E) and external works.

1.3.3 Elements

A sub-division of a component, for example formwork for structural works, tiled finishes for architectural works, drains for external works, surface conduits for mechanical and electrical (M & E) works and others.

1.3.4 Qualified person

A qualified person as defined in the Uniform Building By-Laws 1984.

1.3.5 Approved standards

Approved standard shall mean standard specified by the qualified person for the project.

1.4 Objectives of Quality Assessment System for Building Construction Work

Quality Assessment System for Building Construction Work was designed and developed to enable the user to achieve any of the following objectives:

- a) to benchmark the level of quality of the construction industry in Malaysia;
- b) to have a standard quality assessment system for quality of workmanship of building projects;
- c) to assess quality of workmanship of a building project based on the approved standards;

- d) to evaluate the performance of contractors based on quality of workmanship; and
- e) to compile data for statistical analysis.

1.5 Use of Quality Assessment System for Building Construction Work

Quality Assessment System for Building Construction Work is intended to complement the normal contractual drawings and specifications in a project. It is not intended to be used independently as working specifications. Unless specified in the building contract, qualified persons should not use Quality Assessment System for Building Construction Work to decide if the building or parts of the building project are in accordance with the relevant by-laws. It is still the responsibility of the qualified person to ensure that the quality of the construction works conforms to approved standards, practices, specifications and drawings.

1.6 Scope of Quality Assessment System for Building Construction Work

This standard sets out the quality of workmanship for the various aspects of the construction elements for the general building works. The Quality Assessment System for Building Construction Work cover four main components: **Structural works, Architectural works, Mechanical and Electrical (M & E) works and External works**. Assessments on the workmanship are carried out based on this standard and marks are awarded if the workmanship complies with the standards. These marks are then summed up to give a total quality score (%) for the building project.

However, the assessment excludes works such as piling, foundation and sub-structure works which are heavily equipment-based and called under separate contracts or sub contracts.

The building is assessed primarily on **workmanship standards** achieved through site inspection and field testing. The assessment is done throughout the construction process for structural and M & E works. For completed building projects the assessment is done for architectural, M & E fittings and external works.

Apart from site inspection, the assessment also includes field tests, test results on the material and the functional performance of selected services and installations. These tests help to safeguard the interest of building occupants in relation to safety, comfort and aesthetic; these defects may surface only after sometime.

1.7 Assessment approach

In general, the assessor determines the samples (elements or locations) to be assessed prior to each assessment. The samples are selected from drawings and plans. The selected samples shall be distributed as uniformly as possible throughout the project and construction stages. All locations are to be offered for the assessment.

The scoring will be done on the works that are inspected for the first time. Rectification and correction carried out after the assessment will not be re-scored. The objective of this practice is to encourage contractors towards *"doings things right the first time and every time"*.

When an assessed item does not comply with the corresponding QCLASSIC standards, it is considered failed and an "X" will be noted in the assessment form. Likewise a "v" is given for an item meeting the standards. A "-" will be given to indicate that the item is not applicable. The score is computed based on the number of "v" over the total number of items assessed.

SECTION 2: QUALITY STANDARD

2.1 Components to be assessed

The quality standards for building construction work are divided into four main components:-

a) Structural works

The structural integrity of the building is of paramount importance as the cost of failure and repairs are very significant. The assessment of structural works comprises:

- i) Site inspection of formwork, steel reinforcement, prefabricated or pre-cast elements, etc. during construction.
- ii) Laboratory testing of compressive strength of concrete and tensile strength of steel reinforcement.
- iii) Non-destructive testing of the uniformity and the cover of hardened concrete.

The quality standards for structural works are given in Annex A.

b) Architectural works

Architectural works deal mainly with the finishes. This is the part where the quality and standards of workmanship are most visible.

Architectural works are works such as floors, internal walls, ceiling, door and window, fixtures and fittings, external wall, roofs, driveway, porch and apron.

The quality standards for architectural works are given in Annex B.

c) Mechanical and Electrical (M & E) works

The quality of M & E works is important in view of its increasingly high cost proportion and its impact on the performance of a building. The assessment covers electrical works, air-conditioning and mechanical ventilation works (ACMV), fire protection works, sanitary and plumbing works, lifts, escalator and other basic M & E fittings.

The quality standards for M & E works are given in Annex C.

d) External works

External works cover the general external work elements in building construction such as the linkways/shelters, drains, road works, car parks, footpaths, turfings, playgrounds, gates and fences, swimming pools, hardscapes and electrical substation.

The quality standards for external works are given in Annex D.

SECTION 3: ASSESSMENT

The assessment for building construction work is carried out through a sampling and statistical approach.

3.1 Weightage

The weightage for structural, architectural, M & E and external works are allocated in accordance to four categories of buildings. See Table 1 below.

Table 1. Allocation of weightage for components of building construction work according to building category

Components	Category A (Landed housing)	Category B (Stratified housing)	Category C (Public building)	Category D (Special public building)
Structural works	25 %	30 %	30 %	30 %
Architectural works	60 %	50 %	45 %	35 %
M & E works	5 %	10 %	15 %	25 %
External works	10 %	10 %	10 %	10 %
Total score	100 %	100 %	100 %	100 %

The weightage system, which is aimed

at making the score quantitative in representing the quality of workmanship of a building project. It has taken into consideration the distribution between the cost proportions of the four components in the various buildings and their aesthetic considerations.

The total quality score of a building project is the sum of marks awarded to the four components in each category of a building.

Each category of a building comprise as follow:

- i) **Category A** (Landed Housing) – Detached, Semi-Detached, Terrace and Cluster House.
- ii) **Category B** (Stratified Housing) – Flat, Apartment, Condominium, Service Apartment and Town House.
- iii) **Category C** (Public Building) – Office Building, Schools and other related facilities/ buildings built intended for public use.
- iv) **Category D** (Special Public Building) – Hospitals and Airports only.

3.2 QLASSIC assessors

Assessors must attend the QLASSIC training course before being qualified to carry out the actual assessment at the construction sites. The QLASSIC assessors are continuously updated to ensure consistency and effective implementation of the assessment.

Appendix D: QCLASSIC form

QCLASSIC ASSESSMENT FORM		Internal Finishes		Project ID	Assr 1
Block	Project	Unit	Date	Assr 2	
Location	Floor		Finishing		
			Alignment & Evenness		
			Crack & Damages		
			Hollowness		
			Jointing		
	Wall		Finishing		
			Alignment & Evenness		
			Crack & Damages		
			Hollowness		
			Jointing		
	Ceiling		Finishing		
			Alignment & Evenness		
			Crack & Damages		
			Roughness		
			Jointing		
	Door		Joints & Gap		
			Alignment & Evenness		
			Material & Damages		
			Functionality		
			Accessories Defects		
	Window		Joints & Gap		
			Alignment & Evenness		
			Material & Damages		
			Functionality		
Accessories Defects					
Int. Fixtures		Joints & Gap			
		Alignment & Evenness			
		Material & Damages			
		Functionality			
		Accessories Defects			
B. M&F Fittings		Joints & Gap			
		Alignment & Evenness			
		Material & Damages			
		Functionality			
		Accessories Defects			
P					
S					
C					
P					
S					
C					
P					
S					
C					
No of Compl. (a)					
No of Checks (b)					

Source: PMINT (2015).

Bil	Elemen		Standard QLASSIC/Kecacatan	Alatan/kaedah digunakan	Bacaan/penemuan di tapak/nota
2	A	DINDING DALAMAN	Standard Umum		
		1 kemasn pemasangan			
		No stain mark		Visual	
		Consistent colour tone and good		Visual	
		2 Crack and damage			
		No visible damage/defect		Visual	
		3 Hollowness/delamination			
		No hollow sound		Tapping rod	
		No sign of delamination		Visual	
		4 Alignment & Evenness			
		Evenness of surface	<3mm per 1.2 m	spirit level	
		Verticality of wall	<3mm per 1.2 m	& steel rule	
		Walls meets at right angle	<4mm per 1.2 m	L-Square	
		Edge to be straight and align	<3mm per 1.2 m	measuring tape	
	B	PLASTER FINISHES			
		1 Kemasn pemasangan			
		No visual crack		Visual	
	C	TILES FINISHES			
		1 Kemasn pemasangan			
		joints are align between tiles and consistent size		caliper/visual	
		Consistent and neat marking		Visual	
		Lippage between 2 tiles	<1mm	Spirit level & steel rule	
	D	PAINTING			
		1 FINISHES			
		Surface are evenly painted		Visual	
		No patchiness from touch up			
		Surface free from fading, peeling		Visual	
		blister, chalkiness		Visual	
	E	CEILING			
		1 FINISHING			
		No stain marks		Visual	
		consistent colour		Visual	
		No patchy surface		Visual	
		2 Alignment & Evenness			
		Surface smooth not wavy		Visual	
		Straightness of corners		Visual	
		3 Crack & Damages			
		No visible damage, crack, leaks			
		4 Roughness			
		No rough surface		Visual	
		5 Jointing			
		Konsisten, seragam & kemas		Visual	

Bil	Elemen		Standard QLASSIC/Kecacatan	Alatan/kaedah digunakan	Bacaan/penemuan di tapak/nota
F		WINDOW			
	1	Joints and gap			
		Konsisten gap between window leaf and frame	<5mm	caliper	
		No visible gap between window frame and wall		visual	
		Neat joint between window frame and wall internal/external		visual	
	2	ALIGNMENTS & EVENNESS			
		Parallel with wall opening		visual	
		Window frame square		visual	
		Window leaf corner at right angle	<4mm per 300mm	L-square & steel rule	
	3	Material & damages			
		No stain mark & visible damage/defect		visual visual	
		Louvered window with glass panel of correct length		visual	
		Galzing clean and evenly sealed with gasket for Al windows		visual	
		No sign of corrosion		visual	
		Good paintwork		visual	
	4	FUNCTIONALITY			
		Ease of opening/closing		physical	
		No squeaky sound during opening/closing		physical	
	5	Accessories defect			
		Lockset with good fit and aligned		visual	
		No sign of corrosion		visual	
		No missing or defective		visual	
G		ROOF			
	1	FINISHING			
		No stain marks		visual	
		good paintwork		visual	
	2	Rough/Uneven/Falls			
		Look smooth with no tool marks		visual	
		Even and no stripping		visual	
		Falls in right direction		visual	
	3	Crack and damages			
		No visible damage/crack		visual	
	4	Joint/sealant/alignment			
		Consistent joint width, neat/align		visual	
	5	Chockage/ponding			
		No sign of ponding/leaking		visual	

Bil	Elemen		Standard QLASSIC/Kecacatan	Alatan/kaedah digunakan	Bacaan/penemuan di tapak/nota
		APRON/PERIMETER DRAINS			
	A	GENERAL REQUIREMENTS			
		1 No stains marks		visual	
		damages/defect		visual	
		2 finishes must be even, level, align and consisten		spirit level measure tape	
		3 consisten joints withd and neat		visual	
	B	PERIMETER DRAINS & APRON			
		1 DRAIN			
		Free flowing and no ponding		visual	
		2 DRAIN COVER			
		Level and no warp or rock		visual	
		Gap between drain cover	5-10mm wide	caliper	
		Gap between sides of drain	5-10mm wide	caliper	
		Drain grating proper painted		visual	
		3 APRON			
		No visible crack		visual	
		No water ponding		visual	
		Bitumen joints with neat edges and sufficient length		visual	

Pemeriksa,

(_____)

Wakil Tapak PMINT

(_____)

Wakil Kontraktor

(_____)

Appendix E: Sampling for the architectural works

3.3 Sampling

As it is impractical to assess all elements in a building project, the assessment is carried out through a sampling approach. The sampling, which is based on the gross floor area (GFA) of the building and 10 m length section or per location for external work is to ensure that the assessment adequately represents the entire building project.

3.4 Architectural works assessment

Assessment of architectural works is carried out upon completion of the building project and before handing over of the project.

The weightage for architectural elements are allocated as per Table 2.

Table 2. Weightage for architectural element

Architectural elements		Weightage %	
		Total	Breakdown
Internal Finishes		56	
	Floor		16
	Internal wall		16
	Ceiling		6
	Door		6
	Window		6
	Fixtures (Internal)		6
Roof		10	
External wall		10	
Apron and perimeter drain		4	
Material and Functional tests		20	
	Skim coat or Pre-packed plaster		3
	Field window water tightness test (WTT)		6
	Wet area water-tightness test		6
	Pull-off-test for internal wall tiles		5
Total		100	
NOTE A weightage of 3 % is automatically awarded to projects where skim coat or pre-packed plaster is used. This is to encourage the use of these products in the industry.			

The assessment is based on the sampling guidelines. See Table 3.

Table 3. Sampling guidelines for architectural work

No.	Items	GFA per sample	Min Sample	Max Sample	Remarks
1a	Internal Finishes	70 m ²	30	700	For landed housing
1b	Internal Finishes	70 m ²	30	600	For stratified housing
1c	Internal Finishes	500 m ²	30	150	For public building
1d	Internal Finishes	500 m ²	30	100	For special public building
2	External wall	-	50 %	-	50 % of the blocks/units
3	Skim coat and Pre-packed plaster	-	-	-	Declaration by qualified person
4	Roof	-	50 %	-	50 % of the blocks/units
5	Apron and perimeter drain	-	2	-	10 m length section per sample
6a	Field window water-tightness test (WTT)	1 000 m ²	20	100	Independent testing
6b	Field window water-tightness test (WTT)	-	25 %	-	Self-testing with declaration by qualified person
7a	Wet area water-tightness test	-	20	100	- 10 % of all bathrooms and/or toilets (by location) - all will be tested if < 20 nos.
7b	Wet area water-tightness test	-	100 %	-	- Self-testing with declaration by qualified person
8	Pull-off test for internal wall tiles	10 000 m ²	1 Set	5 Sets	5 tiles per set (by location)

NOTE: GFA means Gross Floor Area

A location for **Internal Finishes** assessment is a functional space of a building such as a room, hall, toilet, kitchen, corridor or lobby. Locations are further categorised into three types:

- **Principal locations** are major functional places such as halls and rooms.
- **Circulation locations** include lift lobbies, corridors and staircases.
- **Service locations** are utility areas such as toilets, kitchens, balconies and yards.

The total number of locations will be distributed according to "Principal", "Circulation" and "Service" based on the percentage set out in the four categories of buildings in Table 4.

Scoring of internal finishes is based on the defects groups shown in Annex E '*Defects Group for Assessment of Architectural Works (Internal Finishes)*'. In general, any item which is not available in a project will not be considered for scoring. For such case, the architectural score will be pro-rated accordingly.

Table 4. Weightage for location of architectural work according to building category

Locations	Category A (Landed Housing)	Category B (Stratified Housing)	Category C (Public Building)	Category D (Special Public Building)
Principal	40 %	40 %	60 %	60 %
Service	40 %	40 %	15 %	15 %
Circulation	20 %	20 %	25 %	25 %
NOTE For other types of building the distribution of percentage shall be in accordance to Category 'C'				

An item under assessment will be considered failed if it does not meet the standards. In addition, any item found to be defective functionally such as evidence of water seepage in the window, slab, ceiling or roof, is considered to have failed the assessment. Likewise for a particular defect that is found excessive in an item (say excessive cracks on a wall).

For the assessment of external wall, a minimum 50 % of the total number of building will be assessed. For a building, the external wall will be divided into 4 walls for assessment.

Under the material & functional tests, self testing items like field window water-tightness test for 25 % of windows and the use of skim coat or pre-packed plaster for all plastering works are based on declaration by the project Qualified Person (QP). In general, declaration on passing for self-testing is based on first-time-right basis.

3.5 External works assessment

Assessment of external works is carried out upon completion of the building and before handing over of the project.

The assessment consists of the following locations:

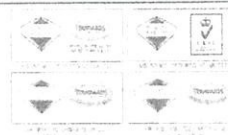
- a) Link-way/Shelter - 10 m length section per sample and minimum 2 samples;
- b) External Drain - 10 m length section per sample and minimum 2 samples;
- c) Roadwork and Car park - 10 m length section per sample and minimum 1 sample;
- d) Footpaths and turfing - 10 m length section per sample and minimum 2 samples;
- e) Playground - 1 location;
- f) Court - 1 location;
- g) Fence and Gate - 10 m length section per sample and minimum 1 sample;
- h) Swimming Pool - 10 m length section per sample and minimum 1 sample; and
- i) Electrical substation - 1 location
- j) Guard House - 1 location
- k) Rubbish Chamber - 1 location

Appendix F: OLASSIC certificate sample

	
<h2>SIJIL QLASSIC</h2> <p>(Sistem Penilaian Kualiti Bagi Projek Pembinaan)</p>	
Tajuk Projek :	
<p>CADANGAN PEMBANGUNAN PANGSAPURI SERVIS 27 TINGKAT YANG MENGANDUNGI 21 TINGKAT PANGSAPURI SERVIS (230 UNITS) 1 TINGKAT KEMUDAHAN REKREASI 4 TINGKAT BERSAMA 1 TINGKAT MEZZANINE TEMPAT LETAK KERETA ARAS TANAH 1 TINGKAT LOBI UTAMA (ARAS TANAH) DENGAN 2 TINGKAT TEMPAT LETAK KERETA BAWAH TANAH DIATAS LOT 124 JALAN CEYLON, SEKSYEN 57 KUALA LUMPUR.</p>	
- LAMAN CEYLON -	
No. Permohonan :	Tarikh Penilaian :
WP-14 B0016 (P)	19 - 21 OGOS 2014
Pemaju/Pemilik :	Kontraktor (Utama) :
EMINENT ACE SDN BHD	DIG-CAST CONSTRUCTION SDN BHD
No. Pendaftaran Syarikat :	No. Pendaftaran CIDB :
341126 - T	1971009-PH043738
Mata CCD : 20 MATA	Gred : G7
Skor QLASSIC :	
<h1>69%</h1>	
	
S/No : 01158	
	
Lembaga Pembangunan Industri Pembinaan Malaysia	

Source: cidb.gov.my (2012).

No. Permohonan : WP-14 B0016 (P)	
Projek: CADANGAN PEMBANGUNAN PANGSAPURI SERVIS 27 TINGKAT YANG MENGANDUNGI 21 TINGKAT PANGSAPURI SERVIS (230 UNITS) 1 TINGKAT KEMUDAHAN REKREASI 4 TINGKAT BERSAMA 1 TINGKAT MEZZANINE TEMPAT LETAK KERETA ARAS TANAH 1 TINGKAT LOBI UTAMA (ARAS TANAH) DENGAN 2 TINGKAT TEMPAT LETAK KERETA BAWAH TANAH DIATAS LOT 124 JALAN CEYLON, SEKSYEN 57 KUALA LUMPUR. - LAMAN CEYLON -	
Nilai Kontrak Projek: RM 101,924,488.37 Pemaju / Pemilik: EMINENT ACE SDN BHD 31 G-2 KELANA MALL JALAN SS6/12, KELANA JAYA 47301 PETALING JAYA SELANGOR No. Pendaftaran Syarikat: 341126-T	Gross Floor Area (GFA) : 22,407.00 m² Kontraktor Utama: DIG-CAST CONSTRUCTION SDN BHD 52-3 & 52-4, JALAN METRO PUDU2 FRASER BUSINESS PARK, OFF JALAN YEW 55100 KUALA LUMPUR No. Pendaftaran CIDB : 1971003-PH043738 Gred : G7 Pengurus Projek / Superintending Officer (SO): EN. TEE LIAN HOE
Arkitek	ARKITEK KDI SDN BHD
Jurutera Struktur	HUSSEIN & KH CHONG JURUTERA PERUNDING (M) SDN BHD
Jurutera M & E	NORMAN DISNEY & YOUNG SDN BHD
Pegawai Penilai (assessor): 1. EN. MURALI SUNDARESON 2. EN. MOHD. NORAZMAN MOHD SAID	Wakil Kontraktor/ Pemaju/ Pemilik: 1. EN. VINOTH A/L VARANAMUTHU
Tarikh Penilaian: 19 – 21 OGOS 2014	Skop Penilaian: 1. Architectural Works 2. External Works 3. Basic M&E Fittings
Cuaca: BAIK Keterangan Penilaian: Sebanyak 320 sample telah di nilai. Hanya penilaian untuk <i>Architectural Works</i> , <i>External Works</i> dan <i>Basic M&E Fittings</i> sahaja dilakukan. <i>Structural Works</i> dan <i>M&E Works</i> tidak dinilai bagi maksud penilaian ini. Sampling dan penilaian adalah berdasarkan kepada <i>Construction Industry Standard (CIS) 7:2006 Quality Assessment System For Building Construction Work</i> yang dikeluarkan oleh CIDB. Peralatan yang digunakan semasa penilaian dijalankan adalah seperti berikut:- a) Spirit Level (1.2 m length) e) Tapping Rod b) Steel Measuring Tape (8m) f) Retractable Plum-bob c) Digital Calliper g) Long Measuring Tape (30m) d) L-square (24" X 12") h) Steel Wedge	
Pecahan Markah: Pecahan markah penilaian untuk <i>Architectural Works</i> , <i>External Works</i> dan <i>Basic M&E Fittings</i> bagi projek ini adalah seperti di mukasurat 2.	



No. Permohonan : WP-14 B0016 (P)

ITEM	ELEMENT	TOTAL WEIGHTAGE	BREAKDOWN WEIGHTAGE	SCORE (%)
A	ARCHITECTURAL WORKS	76.92		51.45
1	Internal Finishes	65.12		
1.1	Floor		18.61	12.41
1.2	Internal Wall		18.61	13.58
1.3	Ceiling		6.98	5.48
1.4	Door		6.98	4.39
1.5	Window		6.98	6.75
1.6	Fixtures (Internal)		6.98	5.84
2	Roof	11.63		2.33
3	External Wall	11.63		7.27
4	Apron & Perimeter Drain	4.65		1.86
5	Material & Functional Test	6.98		6.98
B	EXTERNAL WORKS	15.38		11.86
C	BASIC M&E FITTINGS	7.69		5.98
QLASSIC SCORE (%)				69.29

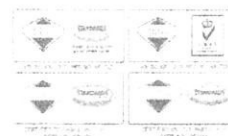
Kesimpulan: **QLASSIC SCORE : 69 %**

Disemak/Disediakan oleh:	Disahkan oleh:
Tarikh: 25/9/14	Tarikh: 29/9/14
Diluluskan oleh:	
Tarikh: 2/10/14	

Nota:

QLASSIC is a method to evaluate the quality of workmanship and finishes of building project against approved standard and the assessment is based on random sampling and statistical approach. CIDB Malaysia is not liable for reliance of this report for whatever purposes. The project architect and/or the project engineer at all time responsible for the quality of construction according to the approved practices, specifications and drawings.

(Rujuk Pengiraan Skor QLASSIC Di Lampiran 1)



Appendix G: QLASSIC awareness programme



INTRODUCTION

Quality Assessment System in Construction (QLASSIC) is an independent and objective method to measure and evaluate the workmanship quality of construction works based on the relevant approved standards. It enables the workmanship quality between construction projects to be relatively and quantitatively compared.

QLASSIC can serve as a tool for industry players to benchmark their quality performance against the industry standards. It can also serve as a quality yardstick for the construction industry.

More and more industry players had used the system, however yet to reach wider spectrum of industry segment.

QLASSIC OBJECTIVE

The QLASSIC programme was designed and developed to enable the user to achieve any or combination of the following objectives:

- to benchmark the level of quality of the construction industry.
- to establish a standard and system to assess construction quality.
- to be established as a KPI to assess the quality performance of contractors.
- to compile and analyze data for continuous improvement of construction quality.

CONSTRUCTION INDUSTRY STANDARD (CIS 7) ON QUALITY ASSESSMENT SYSTEM FOR BUILDING CONSTRUCTION WORKS

CIS 7 sets out requirements on workmanship quality, tolerances and procedures for building construction works assessment. Generally the scope of this standard covers on workmanship quality and not on material quality, design quality or aesthetic preference.

This standard is divided into 4 main components:

- Architectural works
- Structural works
- Mechanical & Electrical (M&E) works
- External works



QLASSIC Awareness Course

In this standard the weightage allocated for these components are further divided into 4 building categories:

Allocation of weightage for components of building construction work according to building category

Components	Category A (Single houses)	Category B (Semi-detached houses)	Category C (Public buildings)	Category D (Special public buildings)
Structural works	25%	30%	30%	30%
Architectural works	60%	50%	65%	35%
M&E works	5%	10%	15%	25%
External works	10%	10%	10%	10%
Total Score	100%	100%	100%	100%

QLASSIC ASSESSMENT

Generally the concept of QLASSIC assessments are as follows:

- Pre-determined Sampling
 - prior to the site assessment, the assessor shall calculate the sampling size based on the specified sampling guideline.
- Site Inspection
 - to assess the constructed works at site against the industry standard.
- One-time Assessment
 - there are no re-assessment of works that are rectified.
- Third Party Assessment
 - assessment shall be carried out by an independent & certified assessors.










PROGRAM

Speakers	Topics
CIDB Accredited Trainer	Construction Industry Standard (CIS) 7 : 2006 – Quality Assessment System for Building Construction Works
QLASSIC Case Study on a Building Construction Project	
CIDB Accredited Trainer	Sharing of good practices on how to improve and achieve high QLASSIC Score on projects

Source: cidb.gov.my (2012).

CLASSIC ASSESSOR ACCREDITATION SCHEME

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graph TD
    Start([Start]) --> Awareness[Awareness Course  
1 day]
    Awareness --> Complete{Complete Course?}
    Complete -- No --> Start
    Complete -- Yes --> Exam[Assessor Training & Knowledge  
Assessment (Exam)  
2 days]
    Exam --> Result1{Result?}
    Result1 -- Fail --> Exam
    Result1 -- Pass --> Practical[Practical Assessment  
(at Site)  
4 days]
    Practical --> Result2{Result?}
    Result2 -- Fail --> Practical
    Result2 -- Pass --> Trainee[Trainee Assessor  
(Hands on Site Assessment  
of 5 Projects)]
    Trainee --> Accredited[Assessor Accredited]
    Accredited --> End([End])
    
```

REGISTRATION INFORMATION

Fees:
RM300.00 per participant for valid CIDB green card holder
RM350.00 per participant for non-CIDB green card holder
Fee includes lunch, refreshments and seminar notes

Payment:
• The fees must be paid one week before the event.
• Money orders, postal order, bankdrafts, bankers cheque & company cheque should be crossed & made payable to **Synovate Solutions Sdn Bhd**
• All payment shall be made directly to the training provider (refer Registration)

Substitution / Cancellation:
Substitution is allowed for registered participants. Please note that all payments must be made one week prior to the event. No refund will be made for cancellation received after the date.

Registration:
Send/fax the complete form (or photocopy) together with a copy of participants CIDB green card (where applicable) and payment/receipt made to:

Synovate Solutions Sdn Bhd (619640-U)
254A, 2nd Floor
2nd Mile, Jalan Ipoh
51200 Kuala Lumpur
Tel : _____
Fax : _____
E-mail : info@synovatesolutions.com
Contact : Ir. K. Laxana Naidu
(Principal Consultant / Director)

or
Contact Pn. Nadiyah
Tel: _____
email: training@synovatesolutions.com

For further enquiries, please contact:
CIDB Technology Division
Tel: _____
Email: qlassic@cidb.gov.my

REGISTRATION FORM

I/We wish to enroll the following person(s) to the **QLASSIC Awareness Course**.

Contact Person : _____	Date : _____
Organization : _____	Tel. No. : _____
Address : _____	HP No. : _____
_____	Fax No. : _____
_____	Email : _____



Signature / Company Stamp

No.	Name of Participants (Capital Letter)	NRIC	Designation	Tel / email
1				
2				
3				

Source: cidb.gov.my (2012).

Appendix H: QLASSIC statistics

*Perception on Quality Assessment System in Construction (QLASSIC) 75
Implementation in Malaysia*

The findings are summaries as follows:

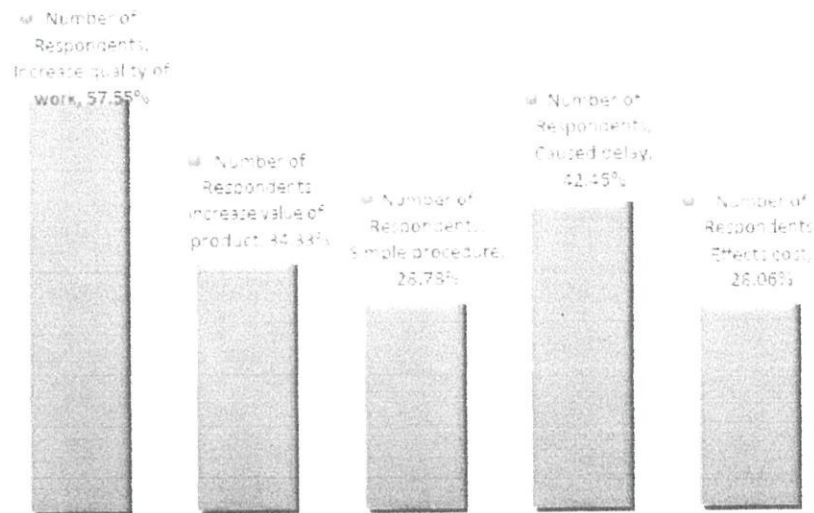


Figure 1. Correspondence Perception Towards QLASSIC Implementation

It was found that 57.55% respondents agree that QLASSIC increases quality of work 34.33% agrees that QLASSIC will increase the value of products and 26.78% agrees that the procedures in QLASSIC are simple. Nevertheless, 42.45% agrees that QLASSIC will cause delay in the work activities and 28.06% agrees that QLASSIC will affect cost.

Incorporating results and findings deliberated in this study below are several discussions attain:

1. There are still many companies in Selangor that have not implemented QLASSIC as Quality Assessment.
2. The property developers and contractor workers perceived QLASSIC is able to:
 - i. Increase the quality of work
 - ii. Increase the value of product
 At the same time, it is also found that procedure in QLASSIC is simple to be adopted. On the contrary, their perceptions on QLASSIC are:
 - i. QLASSIC is causing delay in construction activities
 - ii. QLASSIC have effect on cost of production
3. The level of knowledge on QLASSIC depends on the level of the worker in the company's hierarchy. Worker at a higher level has higher QLASSIC knowledge compared to the worker at a lower level.
4. The property developers and contractor workers are willing to adopt QLASSIC as their Quality Assessment method at their workplaces if suitable motivation and incentives are provided.

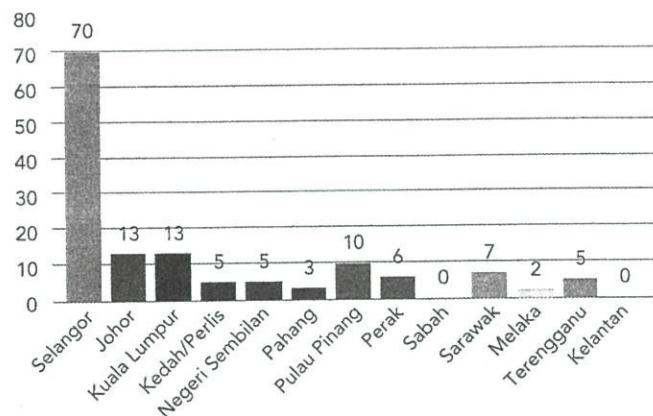
Source: cidb.gov.my (2012).

SISTEM PENILAIAN KUALITI BAGI PROJEK PEMBINAAN

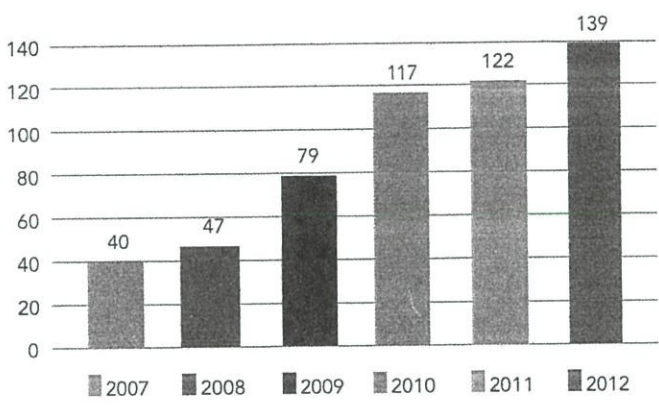


Statistik Penilaian QLASSIC Januari Hingga Disember 2012

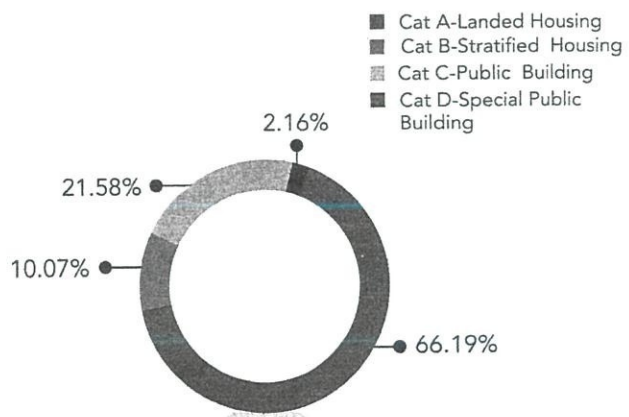
Graf 1: Bilangan Penilaian QLASSIC dari Januari sehingga Disember 2012 Mengikut Negeri



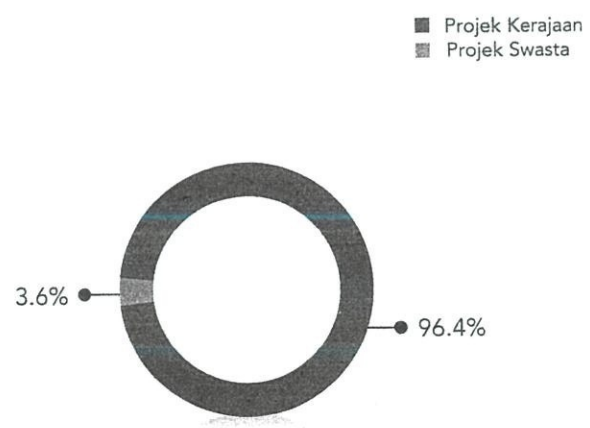
Graf 2: Perbandingan Bilangan Penilaian QLASSIC Mengikut Tahun



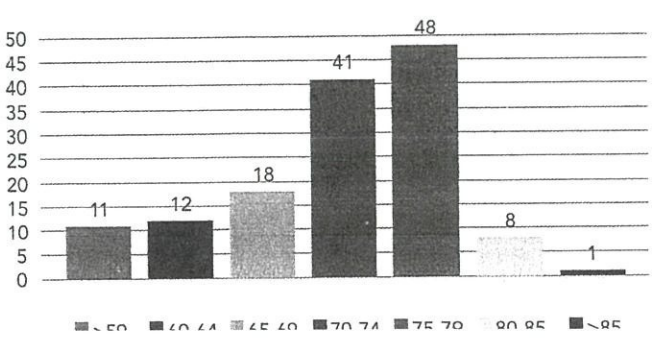
Graf 3: Pecahan Penilaian QLASSIC Mengikut Kategori



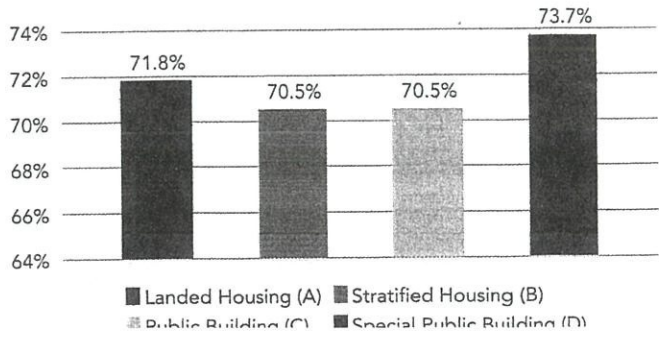
Graf 4: Bilangan Penilaian QLASSIC Mengikut Jenis Projek



Graf 5: Peratus Purata Skor QLASSIC Untuk Tahun 2012



Graf 6: Peratus Purata Skor QLASSIC Mengikut Kategori untuk Tahun 2012

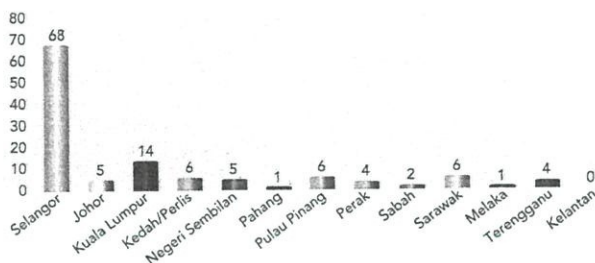


SISTEM PENILAIAN KUALITI BAGI PROJEK PEMBINAAN

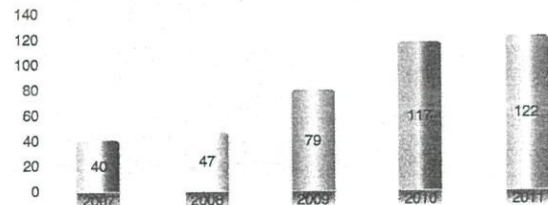


Statistik Penilaian QLASSIC Januari Hingga Disember 2011

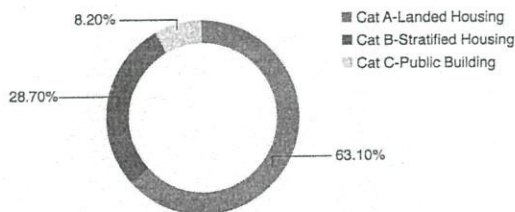
Graf 1: Bilangan Penilaian QLASSIC dari Januari sehingga Disember 2011 Mengikut Negeri



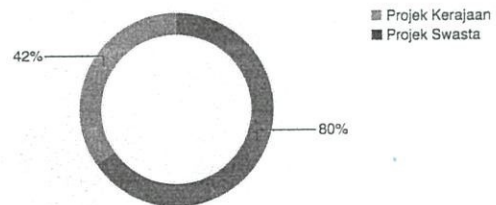
Graf 2: Perbandingan Bilangan Penilaian QLASSIC Mengikut Tahun



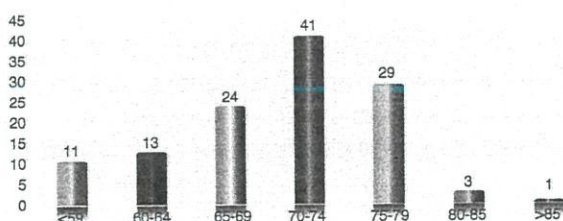
Graf 3: Pecahan Penilaian QLASSIC Mengikut Kategori



Graf 4: Bilangan Penilaian QLASSIC Mengikut Jenis Projek



Graf 5: Peratus Purata Skor QLASSIC untuk Tahun 2011



Graf 6: Peratusan Purata Skor QLASSIC Mengikut Kategori untuk Tahun 2011



Graf 7: Projek yang Mendapat Skor Qlassic Tertinggi Tahun 2011

Bil.	Kontraktor Utama	Pemaju	Tajuk Projek	Skor (%)
1	Bina Tegas Sdn. Bhd.	Archicentre Sdn. Bhd.	Cadangan Meroboh Sebuah Banglo 1 Tingkat Sediada dan Membina Semula Sebuah Banglo 2 Tingkat Beserta Kolam Renang di atas (Lot 216) No. 7 Jalan 11/8E, Seksyen 11, Bandar Petaling Jaya, Selangor Darul Ehsan untuk Dr. Tan Loke Mun dan Puan Chew May-Ann.	88
2	Makassar Sdn. Bhd.	Perumahan Kinrara Berhad	80 Unit Rumah Teres 2 Tingkat & Sebuah Pencawang Elektrik (Double Chamber), Fasa B39 & B40, Bandar Kinrara, Mukim Petaling, Daerah Petaling, Selangor Darul Ehsan untuk Tetuan Perumahan Kinrara Berhad.	84
3	Bina Rezeki Sdn. Bhd.	Sime Darby Property Bhd	10 Unit Rumah Berkembar 2 Tingkat Beserta Attic di Fasa F9 di atas Sebahagian Lot 53663, Seksyen U8, Bukit Jelutong.	81
4	Lim Hoo Seng Construction Sdn. Bhd.	Puchong Gateway Development Sdn. Bhd.	Cadangan Pembangunan Komersil 60 Unit Pejabat dan 1 Unit Pencawang Elektrik (Double Chamber) di atas Sebahagian Lot 48733 (PT45266), Pusat Perniagaan Suria Puchong, Mukim Petaling, Daerah Petaling, Selangor.	81

Graf 7: Projek yang Mendapat Skor Qlassic Tertinggi Tahun 2012

Bil.	Kontraktor Utama	Pemaju	Tajuk Projek	Skor (%)
1	Coronation Estates Sdn Bhd	Yee Seng Heights Sdn Bhd	Cadangan Membina Sebuah Rumah Banglo 3 Tingkat Dengan Kolam Renang di atas Lot No. PT37223, Jalan Bayu 7, Bukit Gita Bayu, Serdang, Mukim Kajang, Daerah Hulu Langat, Selangor Darul Ehsan Untuk Tetuan Yee Seng Heights Sdn Bhd	88
2	Sunway Construction Sdn Bhd	Heritage Land Sdn Bhd	Sambungan Bangunan 25 Tingkat Si Sisi Kanan Mengandungi 9 Tingkat Pangsapuri Servis, 1 Tingkat Kemudahan Hotel, 9 Tingkat Hotel, 7 Tingkat Tempat Letak Kereta dan 1 Besmen Untuk Kemudahan Hotel, Tambahan Bilik Gymnasium di atas Tingkat 25 di Jalan Pinang, Kuala Lumpur Untuk Heritage Land Sdn Bhd	85
3	Selangor Industrial Corp. Sdn Bhd	Must Ehsan Development Sdn Bhd	Cadangan Pembangunan 70 Unit Rumah Teres Dua Tingkat (Parcel G) di atas Sebahagian Lot PT 8093, Mukim Bukit Raja, Seksyen U12, 40170 Shah Alam, Selangor Darul Ehsan (Cahaya Alam - Camelia 2)	83
4	Aik Bee Construction Sdn Bhd	Perumahan Kinrara Bhd	Proposed Construction and Completion of 4 Units Double Storey Detached House, Phase 7415A, Bandar Kinrara, Mukim and Daerah Petaling, Selangor Darul Ehsan	82
5	Aik Bee Construction Sdn Bhd	Perumahan Kinrara Bhd	Cadangan Pembangunan 25 Unit Rumah Banglo Dua Tingkat, Fasa 9A9(C) , Bandar Kinrara, Mukim Petaling, Daerah Petaling, Selangor Darul Ehsan Untuk Tetuan Perumahan Kinrara Berhad	81
6	Taki Engineering Sdn Bhd	Sunway City (Ipoh) Sdn Bhd	28 Unit Rumah Link 2 Tingkat (22' x 75') di Plot 5, Sebahagian Lot P.T 146131, Mukim Ulu Kinta, Ipoh, Perak Darul Ridzuan. (Garden Villa Phase 9)	80
7	Kitacon Sdn Bhd	Sime Darby Property Berhad	Cadangan Membina 26 Unit Rumah Banglo Yang Mengandungi 15 Unit Rumah Banglo 2 Tingkat Beserta 1 Tingkat Separa Bawah Tanah Jenis A dan 11 Unit Rumah Banglo 2 Tingkat Beserta 1 Tingkat Separa Bawah Tanah dan Kolam Renang Jenis B, di Fasa J-7A, Seksyen U8, Bukit Jelutong, Shah Alam, Selangor Darul Ehsan. -SDBJ26-	80
8	PJD Construction Sdn Bhd	Bindev Sdn Bhd	Superstructure & External Work For Blok Pangsapuri Kos Sederhana 30 Tingkat (386 Unit) Dengan Podium Ruang Letak Kereta, Kolam Renang dan Kemudahan Awam (Fasa 8) For Cadangan Skim Perumahan di atas Lot 440,441,803 & 1578, Jalan Assumption Seksyen 4, Daerah Seberang Perai Utara, Pulau Pinang	80
9	Jurutama Sdn Bhd	Jelutong Development Sdn Bhd	The Construction and Superstructure Main Contract Works for The Proposed Mixed Development On Lot 171 (Lot C) at Persiaran KLCC, Kuala Lumpur City Centre, Kuala Lumpur for Arena Merdu Sdn Bhd	80
10	Daewoo Engineering & Construction Co. Ltd	Arena Merdu Sdn Bhd	Cadangan Untuk Mendirikan Pemajuan di atas (Shore Front Development): Fasa 1, 1 Blok (A) 28 Tingkat Kondominium Termasuk 1 Tingkat Podium Tempat Letak Kereta dan 1 Tingkat Separa Besmen Tempat Letak Kereta (88 unit) di atas Lot 691, Seksyen 8, Bandar Georgetown, Pulau Pinang. - The Light Point -	80

Appendix I: QCLASSIC application by PMINT

PROGRAM PENINGKATAN KUALITI

Sistem Pengurusan Kualiti MS ISO 9001 : 2008

Dalam mempromutikan tahap kepuasan pelanggan terhadap penyampaian perkhidmatan PMINT kepada warga kerja, supaya bertali persatuan daripada budaya output dan perbelanjaan atau kesan nyata semata-mata dan kini diterapkan pula dengan budaya yang mempromutikan keberhasilan secara holistik. Setiap pelaksanaan akan dikaji dan diteliti agar lebih berkesan dan dapat menyumbang semula secara maksimum, serta dapat mengelakkan daripada berlaku pembaziran. Perbelanjaan atau peruntukan kerajaan dalam membina sesuatu projek pembangunan digunakan secara berhemah, kena pada tempat, masa dan ketika serta dapat memberi kesan secara menyeluruh.

Justeru, prosedur prosedur kerja yang didokumentasikan di dalam SPK ISO 9001 : 2008 dikaji dan ditambahbaik agar sentiasa relevan dengan keperluan dan kehendak semasa. Ia terus dikaji menyenaraikan kerana birokrasi yang menyukarkan kepada birokrasi yang memudahkan serta menyenaraikan pelanggan. Pengawasan secara berterusan melalui program Audit Dalamian secara berkala juga dilakukan akan agar perkhidmatan dipertingkatkan kualiti dan keberkesanannya bagi memastikan sistem yang digunakan sentiasa relevan dengan kehendak semasa.

PENAMBAHBAIKAN KUALITI PRODUK HARTANAH MELALUI PENILAIAN QCLASSIC

Bermula pada tahun 2012, Jabatan Teknikal PMINT telah mengunakan Sistem Penilaian Kualiti Dalam Pembinaan (QCLASSIC) yang merupakan satu sistem atau kaedah untuk mengukur dan membina kualiti workmanship suatu kerja pembinaan berdasarkan kepada keperluan standard yang berkenaan. Dengan QCLASSIC *quality of workman ship* antara projek pembinaan dapat dibuat perbandingan secara objektif melalui sistem penapisan yang ditetapkan oleh pihak CIDB. Markah diberikan jika elemen pembinaan tersebut mematuhi keperluan standard tersebut. Markah yang terkumpul akan digunakan untuk pengiraan Skor QCLASSIC bagi suatu projek pembinaan.

Penilaian QCLASSIC oleh CIDB dibuat melalui pemeriksaan tapak dan mengikut prinsip *chat time inspection*. Sebarang kerja pembinaan yang



diperbetulkan selepas suatu penilaian dijalankan tidak akan dinilai semula.

Objektif prinsip ini adalah untuk menggalakkan kontraktor untuk 'Buat Kerja Dengan Betul Pada Kali Pertama Dan Buat Kerja Dengan Betul Setiap Kali'.

Untuk memastikan standard QCLASSIC ini dipatuhi dan dicapai pada setiap projek pembangunan hartanah PMINT, satu unit pemantau kualiti dalam PMINT telah ditubuhkan dengan diketuai oleh seorang Pegawai Penyelara Kualiti Projek yang bertanggungjawab menyelia semua projek pembangunan hartanah PMINT. Pegawai Penyelara yang dilantik akan menyediakan aduan lawatan pemeriksaan Kualiti secara berkala. Segala kecacatan yang dijumpai semasa lawatan pemeriksaan kualiti akan dilaporkan kepada penyelia projek yang bertanggungjawab untuk diambil tindakan pembetulan.

ANTARA PROJEK-PROJEK PERUMAHAN KOMERSIAL DAN PERKHIDMATAN PMINT YANG TELAH DIJALANKAN PENILAIAN QCLASSIC PADA TAHUN 2013 ADALAH:-

NO.	PROJEK	TAHUN DINILAI	MARKAH (%)
1	KEDAI KG BATIN	28/05/2013	66%
2	PANGSA KG DUYONG	21/05/2013	58%
3	PERUMAHAN SEBERANG PAKA	15/07/2013	60%
4	PERUMAHAN TERES FASA 2 - KP PERDAMA	17/07/2013	62%
5	PERUMAHAN 'KUALITI' FASA 1 - FASA 2	17/10/2013	57%
6	PERUMAHAN GONG BADAQ 8	23/10/2013	56%
7	BENGKEL TELUK KALONG FASA 2	10/12/2013	59%
8	PERUMAHAN 'KUALITI' BANG	11/12/2013	62%
9	BENGKEL GUNDERING	12/12/2013	62%

Source: pmint.gov.my (2012).

Appendix J: QCLASSIC scores

BIL	PROJEK	TAHUN DI NILAI	MARKAH (%)
1	PERUMAHAN FASA 1 KP PERDANA	11/05/2010	58
2	PERUMAHAN FASA 1A KP PERDANA	12/07/2011	57
3	PERUMAHAN TERES FASA 3A KP PERDANA	14/03/2012	74
4	KEDAI BUKIT KECIL	13/03/2012	69
5	PANGSAPURI LADANG GEMILANG 2	17/04/2012	65
6	BENGKEL JAKAR 3	20/06/2012	71
7	PERUMAHAN KUALA BERANG	13/06/2012	62
8	KEDAI KG BATIN	28/05/2013	66
9	PANGSA KG DUYONG	21/05/2013	56
10	PERUMAHAN SEBERANG PAKA	15/07/2013	60
11	PERUMAHAN TERES FASA 3B KP PERDANA	17/07/2013	62
12	PERUMAHAN BINJAI RENDAH FASA 2	21/10/2013	57
13	PERUMAHAN GONG BADA 8	23/10/2013	56
14	BENGKEL TELUK KALONG FASA 2	10/12/2013	59
15	PERUMAHAN KG CHABANG FASA 1	11/12/2013	62
16	BENGKEL CHENDERING	12/12/2013	62
17	BENGKEL TELOK KALONG FASA 1	14/12/2013	57
18	PERUMAHAN KP PERDANA FASA 4	12/12/2013	60
19	PERUMAHAN KP PERDANA FASA 5 b(i)		80
20	PERUMAHAN KP PERDANA FASA 5 b(ii)		80
21	PUSAT PAMERAN JALAN KEMAJUAN	07/04/2015	64

Source: PMINT (2015).

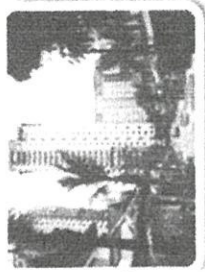


Table 2: Top 5 QCLASSIC Score out of 11 projects for Category B (Stratified Housing) as of 8/8/08					
RANKING	PROJECT TITLE	DEVELOPER/ PROJECT OWNER	MAIN CONTRACTOR	QCLASSIC SCORE (%)	
1	Cadangan Mendirikan 2 Blok Pangsapuri Kos Sederhana (Jumlah 448 unit) bersama kemudahan awam Rumah Kelas di atas Lot 64592 (PT 10271), USJ 1, Mukim Petaling, Daerah Petaling, Selangor	USJ ONE AVENUE SDN BHD	MODULAR CONSTRUCTION TECHNOLOGY SDN BHD	71%	
2	Proposed 1 Block 27 Storey (53 units) Condominium, 16 units 3 storey Semi-D, 2 units 3 storey Bungalow, 1 units 3 Storey Club House & 2 Levels Basement Car Park With Swimming Pool, Mukim Batu, Kuala Lumpur - Condominium Block	FLORA MURNI SDN BHD	EHSAN BINA SDN BHD	69%	
3	Cadangan Pembangunan Perumahan 220 Unit Pangsapuri Kos Sederhana 5, Tkt Fasa II, Pencawang TNB, Persiaran Casurina, Bandar Botanik, Klang Selangor	HARUM INTISARI SDN BHD	N.V BINA SDN BHD	68%	
3	3 Blok Condo 35 Tgkt (Fasa 3) Mont' Klara, Mukim Batu, KL	KIARAMAS DEVELOPMENT SDN BHD	SHIMIZU CORPORATION	68%	
4	Cadangan Pembangunan Kediaman 2 Blok Pangsapuri 16 Tingkat mengandungi 326 unit pangsapuri, 1 unit Bangunan Serbaguna, 1 Unit Pondok Pengawal dan 1 unit Kolam Renang di atas Lot 1181 & 1182, Mukim Petaling, Daerah Petaling, Selangor. (Bukit Serdang) - Blok Pangsapuri	VILLAMAS SDN BHD	TRIENTEL INDUSTRIES SDN BHD	65%	
4	Cadangan Pembinaan 8 Blok Rumah Pangsa 5 Tingkat Kos Sederhana Rendah (310 unit), 4 Buah Kebuk Sampah dan Sebuah Pencawang Elektrik TNB di atas PTD 83511, Taman Desa Tebrau, Mukim Tebrau, Daerah Johor Bahru, Johor	PLENITUDE TEBRAU SDN BHD	PEMBINAAN BINTANG BARU SDN BHD	65%	

Source: ehsanbina.com (2010).

Table 1: Top 10 QCLASSIC Score out of 26 projects for Category A (Landed Housing) as of 8/8/08				
RANKING	PROJECT TITLE	DEVELOPER/ PROJECT OWNER	MAIN CONTRACTOR	QCLASSIC SCORE (%)
1	Cadangan Pembangunan 24 unit rumah Berkembar 2 1/2 Tingkat (Jenis A&B) di RP 5 (Fasa 3B) Kota Kemuning, Seksyen 31, Shah Alam, Selangor Darul Ehsan untuk Tetuan Hicom Development Sdn Bhd	HICOM GAMUDA DEVELOPMENT SDN BHD	N.V BINA SDN BHD	81%
2	Cadangan Pembinaan Rumah Berbandung 42 Unit (Rumah Berbandung 2 1/2 Tingkat Sebanyak 26 Unit Jenis A, 4 Unit Jenis B dan 10 Unit Jenis C juga Rumah Berbandung 2 Tingkat Sebanyak 2 Unit Jenis D) di Taman Dera Tebrau, Mukim Tebrau, Daerah Johor Bahru, Johor	PLENITUDE TEBRAU SDN. BHD.	PEMBINAAN KAMICON SDN BHD	78%
3	Proposed 1 Block 27 Storey (53 units) Condominium, 16 units 3 storey Semi-D, 2 units 3 storey Bungalow, 1 units 3 Storey Club House & 2 Levels Basement Car Park With Swimming Pool, Mukim Batu, Kuala Lumpur - 3 Storey Semi-D	FLORA MURNI SDN BHD	EHSAN BINA SDN BHD	77%
4	Cadangan Membina 150 unit Rumah Teres 2 Tingkat dan 1 unit Pencawang Elektrik di atas Lot PTD 117032, Fasa 2A, Mukim Tebrau, Daerah Johor Bahru	DYNASTY VIEW SDN BHD	TOTAL TEAMWORK SDN BHD	75%
4	Cadangan Membina Dan Menyiapkan Rumah 28 Unit Rumah Berkembar 2 Tingkat, Fasa 7A9(B), Bandar Kinrara, Puchong, Selangor Untuk Tetuan Perumahan Kinrara Berhad	PERUMAHAN KINRARA BHD	ALUNAN ASAS SDN BHD	75%
5	Cadangan Pembangunan 132 unit Rumah Berkembar 1 tingkat dan 12 unit Rumah Berkembar 2 tingkat di Fasa 6A dan 2 unit rumah Teres 1 tingkat dan 2 unit Rumah Teres 2 tingkat di Fasa 6, Mukim Sg. Rasir, Daerah Kuala Muda, Kedah	PLENITUDE HEIGHTS SDN BHD	RENTAS JAYA SDN. BHD.	74%
6	Cadangan pembangunan perumahan sesebuah 2 tingkat dan rumah berkembar 3 tingkat berjumlah 122 unit mengandungi 70 unit rumah berkembar 3 tingkat (40' x 80'), 52 unit rumah sesebuah 2 tingkat (60'x100'), 2 unit Pencawang Elektrik di atas Lot PT 938, PT 939, PT 941, PT 942, PT 943, PT 944, PT 945, Seksyen 13, Shah Alam, Selangor Darul Ehsan	TTDI HARTA SDN BHD	MAKASSAR CONSTRUCTION SDN BHD	73%
6	Cadangan Pembangunan (Fasa 16B2A) yang mengandungi 18 unit rumah berkembar 2 tingkat, Bandar Botanic	HARUM INTISARI SDN BHD	TIMBUNAN BAKTI CONSTRUCTION SDN BHD	73%
7	Cadangan Pembinaan Yang Mengandungi 32 unit Rumah Teres 1 1/2 tingkat Jenis A, 63 unit Rumah Teres 1 tingkat Jenis B, 78 unit Rumah Teres 1 1/2 tingkat Jenis C dan 87 unit Rumah Teres 1 tingkat Jenis D, di Fasa 3CS Bandar Seri Alam, Mukim Plentong, Daerah Johor Bharu	SERI ALAM PROPERTIES SDN BHD	KIMLUM SDN BHD	70%
8	Cadangan Membina 105 unit Rumah Teres 2 1/2 tingkat di atas Lot 22883, mukim Dengkil, Daerah Sepang, Selangor Darul Ehsan	BUKIT HITAM DEVELOPMENT SDN BHD	JASMURNI CONSTRUCTION SDN BHD	69%



Source: ehsanbina.com (2010).



(From left) Eric Wong, Wong, Fong, Chan and Lam.

Firm rated among nation's 10 best

Sherell Ann Jeffrey

KOTA KINABALU: Wah Mie Group subsidiary, Wilakaya Sdn Bhd, was recently rated among the top ten developers in Malaysia.

The Group through its recently completed Alam Damai Condominium was assessed under the stringent standards of the Quality Assessment System in Construction (QLASSIC).

"The project was started in 2008 until 2011 and only recently in July 2011 we received our occupancy certificate (OC).

"In August 2011, we requested the Malaysian Construction Industry Development Board (CIDB) to come here to make an assessment on the quality audit of our building," said its Project Manager Wong Lin Chen here, Wednesday.

"We scored 70 per cent in the assessment, which places us well above the industry average of 65.11 per cent in the category B for Stratified Housing projects.

"The ranking is based on cumulative yearly assessment since its inception in 2007 and benchmarked against other stratified housing projects assess in Malaysia.

"We currently rank seventh nationwide

and this is the first time in Sabah that we have received this ranking," said Wong.

Meanwhile, its Executive Director, Fong Kin Vui added that the Group is committed to building quality homes for the nation.

"With this recognition, our customers will have more confidence in our products, in terms of quality of workmanship and architectural works, as this QLASSIC assessment is evidence of the value of our products."

In addition, Fong said the Group was recently commended by the State government as a good corporate citizen in fulfilling their corporate social responsibility.

"We will have a few new project launching here and in Sandakan next year which can be viewed at www.wahmie.com," he said.

QLASSIC is a programme under the CIDB that measures and evaluates the quality of workmanship of a construction work based on the relevant approved standard.

It enables quality of workmanship between construction projects to be objectively compared through a scoring system.

Also present were its General Manager Lam Kok Goon, Sales and Marketing Manager Eric Wong and Director Chan Ka Tsung.