



PROGRAMME IN BUILDING SURVEYING  
DEPARTMENT OF BUILT ENVIRONMENT STUDIES AND TECNOLOGY  
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING  
UNIVERSITI TEKNOLOGI MARA  
PERAK BRANCH  
SERI ISKANDAR CAMPUS

**TRAINING MODULE FOR HOUSE DEFECT INSPECTION FOR  
RESIDENTIAL BUILDING: CASE STUDY AT TAMAN KOTA SERIBONG**

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PRACTICAL TRAINING REPORT

FEBRUARY 2022

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(TRAINING MODULE FOR HOUSE DEFECT INSPECTION FOR  
RESIDENTIAL BUILDING: CASE STUDY AT TAMAN KOTA SERIBONG)

FEBRUARY 2021

This practical training report is fulfilment of the practical training course.

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# CHAPTER 1: INTRODUCTION

## 1.1 COMPANY PROFILE



Figure 1. 1: AVE Building

Company Name: Akira Ventures Enterprise

Company Adress : PT1530, Tingkat 1, Taman Iman Jaya, Wakaf Che Yeh, 15150  
Kota Bharu, Kelantan.

Contact Number : 012 325 3478 (Wan Amir), 016 220 6494 (Syukran Na'im)

Email : [amir.pthdi@gmail.com](mailto:amir.pthdi@gmail.com)

## 1.2 COMPANY BACKGROUND



Figure 1. 2: AVE Logo

Akira Venture Enterprise (AVE) is a private company founded by En Wan Amir and his partner En Syukran Naim. The company was established in 2020 located in the area of Kota Bharu, Kelantan. The company provided the service in the east coast of Malaysia, especially in Kelantan.

Akira Venture Enterprise is a construction company which have two sub-branding service, Kaki Reno Deco and Pantai Timur House Defect Inspection. Kaki Reno Deco provide service for private home construction, renovation, interior design and landscape services. Pantai Timur House Defect Inspection involved building inspection service for pre and post home ownership and work in progress to sustain the quality of the building.



### 1.3 COMPANY VISION AND MISSION

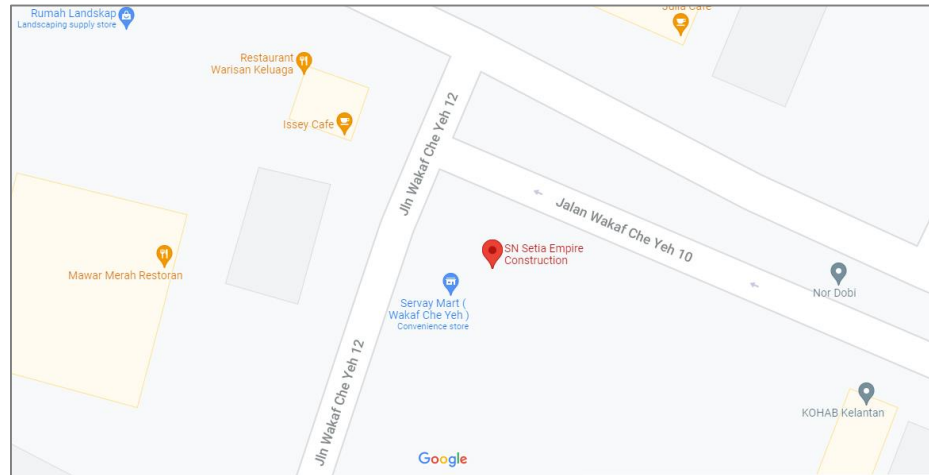
#### VISION

Akira Ventures aims to be a company that provides professional services with integrity in the field of construction (civil) & mechanical on the east coast, especially in Kelantan.

#### MISSION

Akira Ventures is committed in helping our customers to achieve our service professional satisfaction totally in line with the company motto "professionalism within build-in integrity".

## 1.4 LOCATION PLAN



*Figure 1. 3: Location Plan of AVE Building*

## 1.5 SUMMARY

This chapter introduce the selected company which is Akira Venture Enterprise from company profile, its background, vision mission and its location plan.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 RESIDENTIAL BUILDING

Residential building is made up of one or more rooms used for housing, with the necessary facilities and utilities that satisfy the living requirements of a person or family. Residential building for the purpose of house inspection, a structure consisting of one to four dwelling unit used or occupied for residential purpose.

## 2.2 BUILDING DEFECT

### 2.2.1 Definition of Building Defect

A defect is a building flaw or design mistake that reduces the value of the building, and causes a dangerous condition. A construction defect can arise due to many factors, such as poor workmanship or the use of inferior materials. Building defects do not appear to have been minimized despite recent advancements in building technology. Some common defects caused by agents such as atmospheric pollution, poor workmanship or the use of inferior materials and climatic conditions are more frequent.

Defective building construction not only contributes to the final cost of the product but also to the cost of maintenance, which can be substantial. Defective construction includes activities such as compaction not done to specifications leading to ground subsidence and eventual early deterioration of foundations. This may lead to the complete failure of a structure. Conditions under which building construction takes place are often far from ideal with the focus mainly being on speedy delivery. Defects resulting of inaccurate construction can be avoided by ensuring that proper inspection mechanisms are in place. The understanding of building defects and their causes is essential for better performance of any building. Building defects can affect the performance of structure and appearance of structure.

## 2.3 BUILDING DEFECT INSPECTION

### 2.3.1 Definition of Building Defect Inspection

Building inspection is a physical review of a property in the various stages of construction, to ensure the builder has complied with all requirements of the local building codes.

A building inspector is a government employee who reviews plans and visits construction sites to ensure all local and national building codes and regulations are being met. The building inspector, for example, will look at the wiring, HVAC system, foundation, roof, siding, garage, plumbing, and any electrical equipment. If the project does not meet the standards, the building inspector can shut it down.

### 2.3.2 Types of Building Defect Inspection

i. British Standard defined non-destructive testing (NDT) as a test that does not impair the intended performance of the element or member under investigation. Visual inspection is the method applied during the first survey of the structures. The purpose is to observe for any surface discontinuities. Visual features may be related to workmanship, structural serviceability and material deterioration. Typical equipment used during the visual inspection includes special tapping hammer, crack gauge, magnifying glass, binocular and camera. For buildings, survey may be started from the outside of the building and followed by the inside survey with particular attention given to areas at the corner or any tension area of the building.

ii. Destructive Test

Destructive testing methods are commonly used for materials characterisation, fabrication validation, failure investigation, and can form a key part of engineering critical assessments, which also involves non-destructive testing techniques such as digital radiography. During the process, the tested item undergoes stress that eventually deforms or destroys the material. Naturally, tested parts and materials cannot be reused in regular operation after undergoing destructive testing procedures.

## 2.4 METHOD OF ASSESSMENT

- a) Site Inspection
  - Visual assessment
  - Physical Assessment
  
- b) Use assessment tools as specified in CIS
  - To inspect for defect
  - Tapping rod, Angle mirror & others
  
- c) Use assessment tools as specified in CIS
  - To measure the building element is within the specified tolerance
  - L-Square, Steel gauge, spirit level & others





## 2.5 TOOLS & EQUIPMENT USED FOR HDI











Tools	Function
<p>1. Tapping rod</p>  	<p>QLASSIC tapping rod to check for hollowness on wall or floor. Also used to check for lippage. Also used to check for lippage.</p>
<p>2. Steel Rule/ Gauge</p>  	<p>Steel gauge to measure gap between door leaf &amp; door frame (tolerance in CIS 7: size of gap <math>\leq 5\text{mm}</math>).</p>

Table 3. 2: The list of Tools and Equipment for HDI

Tools	Function
<p data-bbox="444 384 799 415">1. L-Square and Steel Gauge</p> 	<p data-bbox="954 384 1414 514">L-square (300x200mm) &amp; steel wedge: walls to meet at right angle. (tolerance in CIS7 is <math>\leq 4\text{mm}</math> over 300mm)</p>
<p data-bbox="444 1169 630 1201">2. Spirit Level</p> 	<p data-bbox="954 1169 1414 1402">Spirit Level (1.2m length) used to check the variance in lengths of treads for staircase must not exceeding 5mm from dimensions specified in the approved drawings.</p> <p data-bbox="954 1472 1414 1602">Spirit Level also used to check floor in wet areas to have proper falls using spirit level.</p>

Tools	Function
<p data-bbox="394 394 602 426">3 Torch Light</p> 	<p data-bbox="954 394 1398 426">To check on the area with no lighting</p>
<p data-bbox="394 718 651 749">4 Measuring Tape</p> 	<p data-bbox="954 718 1414 779">To measure the length of defect and its related matter</p>
<p data-bbox="394 1010 618 1041">5 Angle Mirror</p>  	<p data-bbox="954 1010 1390 1071">Angle Mirror to check the paintwork on top &amp; bottom of door leaf</p>

## 2.6 DEFECT CLASSIFICATION

### 2.6.1 Architectural Work

#### The Element of Architectural Work

Internal Finishes	Floor, Internal Wall, Ceiling, Door, Window, Internal Fixtures
External Finishes	Roof, External Wall, Apron & Perimeter, Drain, Carpark & Car porch
Material & Functional Test	Skim Coat or Pre-packed Plaster, Wet Area Water Tightness Test/ Wet Area Ponding Test

*Table 3. 3: The Element of Architectural Work*

#### Defect Group for Architectural Work

Finishing
Alignment and Evenness
Crack and Damages
Hollowness and Delamination
Jointing

Table 3. 4: Defect Group for Architectural Work

### 2.6.2 M&E Work

Plumbing	Pipes
	Gully trap & floor trap
	Fittings ( shower/ shower tap/ water tap & others)
M&E fittings	Power points/ switches/ lights, telephone point, air- con diffuser, fan coil unit, lighting, smoke alarm, sprinkler heads, CATV/CCTV camera

Table 3. 5: List OF M&E Work

2.7 THE CONSTRUCTION INDUSTRY STANDARD FOR HOUSE DEFECT ASSESSMENT

2.7.1 Architectural Work

Floor Element

<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Finishing	No stain marks	Visual
	Consistent color tone	Visual
	Surface should not be unduly rough or patchy	Visual
	No permanent foreign material visually detected	Visual
	Finished texture & color to be uniform	Visual

Table 3. 6: list of Architectural Work

<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Alignment and Evenness	Evenness of surface	Visual
	Falls in wet areas should be in right direction	Visual
	For staircase, the variance in lengths of treads and risers must not exceed 5 mm from dimensions specified in the approved drawings	Visual
	Joints are aligned with skirting tiles or wall tiles	Visual
	Joints are aligned between tiles	Visual
	No protrusion or potential of tripping over of panels	Visual
	Lippage between two tiles	Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Cracks and Damages	No visible damages /defects (chipping, broken tiles, crack tiles,scratches, broken timber	Visual
	No warpage	Visual
	No loose floor panels or rocking	Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Hollowness/ Delamination	No hollow sound when swipe and tapped	Tapping rod
	No sign of delamination	Physical
	Timber strips to rest firmly onjoists or screeds	Visual & Physical

<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Jointing	Edge to be straight and aligned	Visual
	Consistent skirting thickness and no visible gaps between wall and skirting	Visual
	Jointing are consistent in size	Visual
	No visible gaps between tiles/timber strips/ carpet	Visual
	Edges of the floor are properly sealed	Visual

### Internal Wall

Defect Group	Standard	Assessment Tool
Finishing	No stain marks	Visual
	Consistent colour tone and good paintwork	Visual
	No rough/patchy surface	Visual
	Surface should be smoothly finished	Visual
	No brush marks to be seen	Visual
	Good opacity, no patchiness resulted from touch up work	Visual
	Surface should be free from peeling, blister, chalkiness (no discolouration and fading)	Visual and Physical
	Surfaces are evenly painted	Visual

Defect Group	Standard	Tolerance	Assessment Tool
Alignment and Evenness	Evenness of surface	$\leq 3$ mm per 1.2 m	Spirit level 1.2m and steel wedge
	Verticality of wall		Visual
	Walls meet at right angle	$\leq 4$ mm over 300 mm	L-square (200mm x 300mm and steel wedge)
	Joints are aligned between tiles		Visual
	Wall paper should be stretched and even surface		Visual
	Glass blocks/panels should be properly aligned		Visual
	Lippage between two tiles	$\leq 1$ mm	Tapping rod or L-square (200 mm x 300 mm and steel wedge)

<b>Defect Group</b>	<b>Standard</b>	<b>Type of Finishes</b>	<b>Assessment Tool</b>
Cracks and Damages	No visible damages/defects/visual crack/ dent/scratches/corrosion		Visual
	Crack and warpage should not be detected		Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Type of Finishes</b>	<b>Assessment Tool</b>
Hollowness/ Delamination	No hollow sound whenswipe and tapped	Plaster / Tiles Finishes	Tapping rod
	No sign of delamination	Wallpaper, Wood/ Timber Panel	Physical
	Timber strips to rest firmly on joists or screeds	Wood Finishes	Visual & Physical

<b>Defect Group</b>	<b>Standard</b>	<b>Type of Finishes</b>	<b>Assessment Tool</b>
Jointing	Edges to be straight, aligned and consistent	Plaster Finishes/ Tiles Finishes/ Painting/ Wallpaper/ Wood or Timber Panel/ Cladding/ Glass Blocks/ Architectural Coating	Visual
	Joints should not be visible	Plaster Finishes/ Tiles Finishes/ Painting/ Wallpaper/ Wood or Timber Panel/ Cladding/ Glass Blocks/ Architectural	Visual



	Coating	
Proper anchoring at all edges	Wallpaper	Visual
Edges should be neatly laid and finished	Wallpaper	Visual
Consistent and neat marking	Tiles Finishes/ Cladding/ Glass Blocks	Visual
Joints between tiles consistent in size	Tiles Finishes	Visual
Proper anchorage for panels	Cladding	Visual
Edges should be properly aligned and sealed	Wood/ Timber Panel	Visual
Consistent spacing and within allowable tolerance	Cladding	Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Type of Finishes</b>	<b>Assessment Tool</b>
Finishing	No stain marks	Plaster / Skim Coat Ceiling/ False ceiling/Grid System	Visual
	Consistent color tone	Plaster / Skim Coat Ceiling/ False ceiling/Grid System	Visual
	Paintwork with good opacity and with no brush marks	Plaster / Skim Coat Ceiling/ False ceiling/Grid System	Visual

## Ceiling

<b>Defect Group</b>	<b>Standard</b>	<b>Type of Finishes</b>	<b>Assessment Tool</b>
Alignment and Evenness	Surface should be smooth, even, not wavy and not sagging	Plaster / Skim Coat Ceiling/ False ceiling/ Grid System	Visual
	Straight and aligned ceiling edges	Plaster / Skim Coat Ceiling/ False ceiling/ Grid System	Visual
	Alignment of rails should be visually straight	False ceiling/ Grid System	Visual
	Laid neatly on grids	False ceiling/ Grid System	Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Type of Finishes</b>	<b>Assessment Tool</b>
Cracks and Damages	No visible damages like spalling, leaks cracks, chipped, cracked surfaces or corners should not be detected	Plaster / Skim Coat Ceiling/ False ceiling/ Grid System	Visual
	No pin holes	Plaster / Skim Coat Ceiling	Visual
	No sign of corrosion	False ceiling/ Grid System	Visual
	Panels should not warp	False ceiling/ Grid System	Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Type of Finishes</b>	<b>Assessment Tool</b>
Roughness/ Patchiness	No rough or patchy surfaces	Plaster / Skim Coat Ceiling/ False ceiling/ Grid System	Visual
	No trowels marks	Plaster / Skim Coat Ceiling	Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Type of Finishes</b>	<b>Assessment Tool</b>
Jointing	Consistent, aligned and neat	Plaster / Skim Coat Ceiling/ False ceiling/ Grid System	Visual
	Access opening joints should beneat and consistent width	Plaster / Skim Coat Ceiling/ False ceiling/ Grid System	Visual
	Formwork joints are grounded smooth	Plaster / Skim Coat Ceiling	Visual
	Gap between ceiling and wall should not be detected	Plaster / Skim Coat Ceiling/ False ceiling/ Grid System	Visual

Door

<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Joints and Gaps	Consistent gap between bottom of door leaf and finished floor	≤ 5 mm	Steel wedge
	No visible gaps between door frame and wall		Visual
	Neat joints between frame and wall internally and externally		Visual
	Consistent and no visible gaps for joints at door leaf and frame	≤ 5 mm	Steel Gauge

<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Alignment and Evenness	Aligned and level with walls		Visual
	Double leaf doors to flush with each other		Visual
	Doors frame and leaf to flush		Visual
	Door leaf and frame corners maintained at right angles		L-square (200 x 300)mm
	No rattling sound when the door is closed		Physical and auditory (hearing)

<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Materials and Damages	No stains marks and any visible damages		Visual
	No sags warps on door leaf		Visual
	Door joints and nail holes filled up, properly sanded with good paintwork		Visual
	Glazing clean and evenly sealed with gasket		Visual
	No sign of corrosion		Visual
	Good paintwork (including top and bottom of doorleaf)		Visual and angle mirror
	Consistent colour tone		Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Functionality	Ease of opening, closing and locking		Physical
	No squeaky sound during opening and closing of the door	Test minimum 1 time continuously	Physical and auditory (hearing)
	Lockset should be functional	Test minimum 1 time continuously	Physical

<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Functionality	Ease of opening, closing and locking		Physical
	No squeaky sound during opening and closing of the door	Test minimum 1 time continuously	Physical and auditory (hearing)
	Lockset should be functional	Test minimum 1 time continuously	Physical

<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Joints and Gaps	Consistent gap between window leaf and frame (for timber window only)		Visual
	No visible gaps between window frame and wall		Visual
	Neat joints between window frame and wall, internally and externally		Visual
	Consistent and no visible gaps for joints at window leaf and at frame		Visual

Window

<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Alignment and Evenness	Alignment/level with wall openings		Visual
	Window leaf and frame corner maintained at right angles		Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Materials and Damages	No stain marks and visible damages/ defects		Visual
	Louvered window with glass panels of correct length		Visual
	Glazing clean and evenly sealed with putty or gasket for aluminium windows		Visual
	No sign of corrosion		Visual
	Good paintwork		Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Functionality	Ease opening, closing and locking		Physical
	No squeaky sound during opening and closing of the window	Tested minimum 1 time continuously	Physical and auditory (hearing)
	No sign of rainwater leakage		Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Accessories Defects (e.g., hinges, screw, and handle )	Locksets with good fit and aligned	Visual
	No sign of corrosion	Visual
	No missing or defective accessories	Visual
	Screws levelled and flushed. No over-tightened screws	Visual

#### Internal Fixtures

<b>Element</b>	<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
<b>Internal fixtures</b> (wardrobe, kitchen cabinet, vanity top, mirror, bathtub, water closet, shower screen, sink, basin, signage, railing, unit number plate, grill door,)  Note: All M&E fitting that comes with internal fixtures shall be assessed as part of internal fixtures consider under accessories	Joints and Gaps	Consistent joint width and neat	Visual
		No visible gaps	Visual
		Welding joints grounded or flushed	Visual
	Alignment and Evenness	Level and in alignment	Visual
	Materials and Damages	No stain marks	Visual
		No visible damages/ defects	Visual
		Consistent with colour tone	Visual
	Functionality	Functional, secured and safe	Visual & Physical
	Accessories Defects	No missing accessories	Visual
		No sign of corrosion	Visual
No damages/ defects		Visual	



Roof - Flat roof including exposed waterproofing, gutters and rain water down pipes (RWDP)

<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Finishing	No stain marks	Visual
	Good paintwork	Visual
	No paint defects	Visual
Rough/Uneven/ Falls	Smooth and with no tool marks	Visual
	Even and level, especially with no potential of stripping	Visual
	Falls in right direction	Visual
	Surface to level to avoid tripping	Visual
Cracks and Damages	No visible damages/defects, e.g., cracks, chippings, etc	Visual
	No signs of damage to membrane/coating	Visual

<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Joint/ Sealant/ Alignment	Consistent joint width, neat and aligned		Visual
	RWDP inlet to be lower than the surrounding gutter invert level		Visual
Chockage/ Ponding	Water ponding	< 3 mm	Visual and measuring tape
	No sign of chockage		Visual
Construction	Proper dressing for any protrusion		Visual
	Opening to be sealed to prevent pest invasion		Visual
	Evenly installed, no sharp protrusion		Visual
	Complete adhesion to base		Visual
	Good laps at joints and proper vertical abutment details		Visual

	Gutter and RWDP inlet to be covered to prevent chockage, where practical		Visual
--	--	--	--------

Pitched Roof Including Gutters and Rain Water Down Pipes (RWDP)

Defect Group	Standard	Assessment Tools
Finishing	No stain or rust	Visual
	Consistent color tone	Visual
	Good painting to roof structural members	Visual
Rough/Uneven/Falls	Smooth and with no tool marks	Visual
	Even and level, especially with no potential of stripping	Visual
	Falls in right direction	Visual
Cracks and Damages	No visible damages/defects, e.g., cracks, chippings, etc	Visual
Joint/Sealant/Alignment	Consistent joint width, neat and aligned	Visual
	RWDP inlet to be lower than the surrounding gutter invert level	Visual
Chockage/Ponding	No sign of chockage and ponding at gutter & rain water down pipes	Visual
Construction	Proper dressing for any protrusion	Visual
	Opening to be sealed to prevent pest invasion	Visual
	Gutter and RWDP inlet to be covered to prevent chockage, where practical	Visual

External Finishes: Apron & Perimeter Drain

<b>Item</b>	<b>Defect Group</b>	<b>Standard</b>	<b>Tolerance</b>	<b>Assessment Tool</b>
Drain cover/ Inspection Chamber	Finishing	No stain marks		Visual
		No patchiness & brush marks		Visual
		No sign of corrosion on the drain grating		Visual
	Alignment and Evenness	Finishes must be even, level, aligned and consistent		Visual
		Level and do not wrap or rock		Visual & Physical
	Cracks and Damages	No visible cracks and damages		Visual
		Fixtures installed must be safe, secured and functional		Visual and Physical
	Fall/Gradient	Free flowing and no water ponding		Visual
		Drain grating to be safely and securely fixed and functional		Visual
	Joints and Gaps	Consistent joints width and neat		Visual
		Gap between drain covers	5-10 mm wide	Visual
		Gap between sides of drain	5-10 mm wide	Visual

External Finishes: Car Porch

<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Finishing	No stain marks	Visual
	Consistent color and good paintwork	Visual
	No rough/patchy surface	Visual
Alignment and Evenness	Evenness of surface	Visual
	Edge to be straight	Visual
Materials and Damages	No visible damages/defects	Visual
	No missing or defective accessories	Visual
	No sign of corrosion	Visual
Functionality	Securely fixed, functional and safe	Visual and physical
Joints and gaps	Consistent joints width and neat	Visual
	No visible gaps for M&E fittings	Visual

## 2.7.2 Basic M & E Fittings

### Plumbing Fittings

<b>Item</b>	<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Gully and floor trap	Joints and Gaps	No visible gap	Visual
		Consistent joints width and neat	Visual
	Alignment and Evenness	Aligned, levelled and straight	Visual & Spirit level
		Traps top lower than the surrounding floor level	Visual
	Materials and Damages	No visible damages/defects	Visual
		No stain marks	Visual
		Consistent color tone	Visual
	Functionality and Safety	No operational defects	Physical & Visual
		Must be securely fixed	Physical
		No chokings	Visual
	Accessories Defects (Floor trap cover)	No missing accessories	Visual
		No visible damages/defects	Visual
		Accessories with good fit and no stains	Visual

<b>Item</b>	<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Pipes	Joints and Gaps	No visible gap	Visual
		Consistent joints width and neat	Visual
		Joints properly sealed and marked	Visual
	Alignment and Evenness	Aligned, levelled and straight	Visual & Spirit level
		Horizontal, vertical and parallel aligned to building surface	Visual
	Materials and Damages	No stain marks	Visual
		Consistent color tone	Visual
		If painted, no drippings with good opacity	Visual
		No visible damages/defects, bent without distortion and kink	Visual
	Functionality and Safety	No operational defects	Physical & Visual
		No leakage at joints	Visual
		Securely fixed	Physical
	Accessories Defects (Bracket & Screw)	No missing accessories	Visual
Brackets securely fixed & pipes properly support		Visual	

<b>Item</b>	<b>Defect Group</b>	<b>Standard</b>	<b>Assessment Tool</b>
Fittings	Joints and Gaps	No visible gap	Visual
		Consistent joints width and neat	Visual
		Joints properly sealed and marked	Visual
	Alignment and Evenness	Aligned, levelled and straight	Visual
	Materials and Damages	No visible damages/defects (i.e., chipping or cracks)	Visual
		No stain marks (paint drops or mortar droppings)	Visual
		Consistent color tone	Visual
	Functionality and Safety	No operational defects	Visual
		No leakage at joints	Visual
		Securely fixed	Physical
		Fittings in working condition	Visual and Physical
		Accessible for maintenance	Visual
		All sensors covers properly sealed against water seepage	Visual
	Accessories Defects (Moveable parts: screw, capping, shower rose)	No missing accessories	Visual
		No visible damages/defects	Visual
Accessories with good fit and no stains		Visual	

Item	Defect Group	Standard	Tolarence	Assessment Tool
Installation (include power point, telephone point, air-cond diffuser, fan coil unit, lighting, smoke alarm, sprinkler heads, CATV/CCTV camera, speakers, alarm system, etc )	Joints and Gaps	No visible gaps		Visual
		Consistent joints width and neat		Visual
		Neat patch-up for marking/penetration		Visual
		No visible gap between switches and walls		Visual
	Alignment and Evenness	Aligned, levelled and straight		Visual & Spirit level
		Heights of switch and marks should be consistent		Visual
	Materials and Damages	No visible damages/defects		Visual
		No stain marks		Visual
		Consistent color tone		Visual
	Functionality and Safety	No operational defects		Physical and Visual
		Securely fixed, functional and safe		Physical
		Switch can properly function	Tested minimum 1 time	Physical
	Accessories Defects (Moveable parts;screw, capping, switches button)	No missing accessories		Visual
		No visible damages/defects		Visual
		Accessories with good fit and no stains		Visual



## 2.8 HOUSE DEFECT INSPECTION REPORTING

House Defect Reporting were done after the building inspection. The report is for the specific purposed of assessing the general condition of the property. It contained the general information and defect detail. The inspection report is a valid instrument to submitted to the client.



Figure 2. 1: The Cover Page for HDI Report

## 2.9 THE IMPORTANT OF BUILDING DEFECT INSPECTION

The importance of building defect inspection is to protect interest of new home buyers. It is:

- i. Confirmation on materials and workmanship of the building.

In general, new house buyers are eager to move in their new house once issuance of vacant possession is given by the Property Developers. Building defects could be identified through visual inspection. However ,any legal incompliance due to the materials used and workmanship are difficult to determine by the house buyers. Most of the vendor's representatives try their best to avoid from receiving many complaints pertaining to the defects of the buildings. The situation is even worse, when the owner lacks technical background to confirm on specification and building condition of the property.

In Malaysia, the property developer is subjected to the Housing Development. The provision of Clause 13 in Schedule H of Housing Development stated that the property shall be constructed in accordance with the plans approved by the appropriate authority. The law has also highlighted no changes or deviations therefore shall be made without the consent in writing of the purchaser except such as may be required by the appropriate authority. In view of the above matter, most of the vendors, take advantage on buyers who lack technical knowledge and legal rights of their property. As such, the building condition survey report (BCSR) will reveal information related to specification, material and workmanship.

- ii. The right of new house buyers are protected under provision.

In Malaysia, any new completed houses are protected under the provision of Defect Liability Period (DLP) as stated in Clause 29 in Schedule H of Housing Development. Any defect, or other faults in the said parcel or in the building or in the common property which shall become apparent within a period of twenty four month (24 months) after the date of vacant possession of the said parcel. Most of the new home buyers are not aware of their rights, that any defect of the property could be claimed to the vendors.

- iii. To be used as a tools for Property Developer to manage building defects.

The condition survey report is a comprehensive report containing a list of defects, photo, building plan and recommendation of rectification work. The vendor can use the report to monitor the appointed contractor to carry out rectification works. The Report will be used as a tools to the Property Developer to monitor every building defects and statutory incompliance related to the houses. The report is an imperative tool to monitor the progress of rectification work to be done by the appointed contractor within Defects Liability Period (DLP). DLP is effective for 24 months after vacant possession and within this period, the owner could lodge their complain and to be rectified by the Property Developer with the said period.

## 2.10 CHAPTER SUMMARY

This chapter were about the standard of building construction, the inspection will use this as their reference when inspect the defect. The methods, tools, the standard and the important of hiring defect inspector were describe in this chapter.

# CHAPTER 3: CASE STUDY

### 3.1 INTRODUCTION TO CASE STUDY



Figure 3. 1: The Area of Kota Seribong Residential



Figure 3. 2: The House of Clients

The selection of the case study was meant for the study of training module for house defect inspection for residential building.

The case study known as Kota Seribong Residency is a two-storey terrace house located at Kota Seribong in Kota Bharu, Kelantan. Kota Seribong Residency placed at strategic location which it close to schools, markets, supermarket, Kota Bharu city center, government departments and many more.

This housing is the choice of the people because it is built with a modern and attractive design. Residential areas are equipped with 24 -hour surveillance. The housing area are quiet, green & peaceful area. The construction plans of various infrastructure facilities nearby.

**Client Information**

Name of Client	Pn. Farah
Type of Building	Residential House
Status of Occupancy	Newly House
Area of Building	1702 sqft
Date of Inspection	17 January 2022

Table 3. 7: The Information of Clients

### 3.2 THE ASSESSMENT FOR HOUSE DEFECT INSPECTION

PANTAJ TIMUR HOUSE DEFECT INSPECTION (SOP & CHECK LIST)

DEFECT LIST		DEFECT DESCRIPTION	DEFECT CATEGORY
NO	AREA		
K1	Car Park	Chipped off column edge	Wall/Column - CSD
E2		Rear glanding finishing	Floor - Finishing
E3		Chipped off beam edge	Wall/Beam - CSD
E4		Bottom Column paint blistering	Wall/Column - Finishing
E5		Detached up wall plug	Column -
E6		ceiling damage at joint area	Ceiling - CSD
E7		Door touch up finishing	E-wall - Finishing
E8		Paint discoloration	"
E9		Unpainted touch up area	"
E10		Paint stain on wall ceiling	E-wall - Finishing
E11		Crack on Airing screen	Fencing - CSD
E12		Gate epoxy to de-rail	Fencing - CSD
E13		Excess paint feet off	Fencing - CSD
E14		Door touch up Unpainted gate area	Fencing - Finishing

Figure 3. 3:The Defect Checklist



Figure 3. 4: Activities of HDI

The defect assessment at Kota Seribong take two days to complete. It depends on the area of the building. All the element and component in this building was inspected by using tools and equipment. The building element such as floor, wall, ceiling, door, window and other components include M&E fittings and permanent fixtures such as bath tubs, basins and kitchen cabinet. The defects were assessed by area or room for example master bedroom, guest room, bathroom 1, bathroom 2, kitchen and family area.



The defect inspection performed by assess the wall in the living room, we look at the finishing. Make sure the walls are free from paint drips or stain marks and are evenly painted. Next, we checked the alignment and evenness. Then, see whether there are cracks or damage on the walls. We also check the wall for hollowness and make sure there is consistent skirting thickness and no visible gap between the wall and skirting. Finally, ensure that all electrical outlets and switches are properly installed. Make sure the positions of the electrical outlets and switches follow what is stated in the layout plan.

For doors, windows, components and M&E fittings, we check for alignment and evenness, the joints and gaps, materials and damage, functionality and accessories defects. For instance, check the windows, make sure the lead and frame corners are at the right angles. Make sure the window can open and close smoothly.

Next, check that the windows are sealed when closed. Also, we see whether there are scratches on the glass and check that the windows can be locked properly. Finally, make sure there are no missing accessories and that all the accessories, such as the window stays, handles and screws, are in good condition.

For bathroom, make sure all the taps are functioning. Pour a pail of water down the sink to see whether the water in the basin discharges quickly. Check that the bath tub, basin and toilet bowl are properly installed. Inspect under the bath tub and basin to ensure there are no leaks. Also check whether the tiles have been properly installed. Make sure there isn't a hollow sound when we tap on the floor tiles. Also, pour a pail of water on the floor to see whether there is a water ponding problem and whether the floor is properly sloped.

For roof, we will use the ladder to assess the defect. We check for water tank to make there are no dirt. We also check for wiring and piping by making sure they are installed properly. Finally, we check for roof tile, making sure there are no sun light or hole.

### 3.3 HOUSE DEFECT IINSPECTION REPORT FOR KOTA SERIBONG



Figure 3. 5: Cover Page for Kota Seribong HDI Report

## 1: INSPECTION DETAILS

### Information

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<b>Inspection Date</b> 2022	17 January
<b>Type of Building</b> Terrace	2 Storey
<b>In Attendance</b> Inspector	Client, House
<b>Occupancy</b>	Newly House

### General Disclaimer

#### Disclaimer

The House Defect Inspection Report is prepared by Pantai Timur House Defect Inspection for the specific purpose of assessing the general condition of the property and identifying defects that are readily apparent at the time of inspection based on the limited visual, non-invasive inspection. Contained in this report are general information items and defect details.

This report is our professional opinion but not a guarantee or a warranty. The inspection is intended to add to your knowledge of the building and help you understand the defects and risk in it.

The report is complete and thorough, but it is a general overview, not technically exhaustive. Specialists in each field could provide a more detailed analysis of the building systems, but at considerably more cost and time. Our visual and limited operational inspection provides the broadest overview of the property with less costs and time.

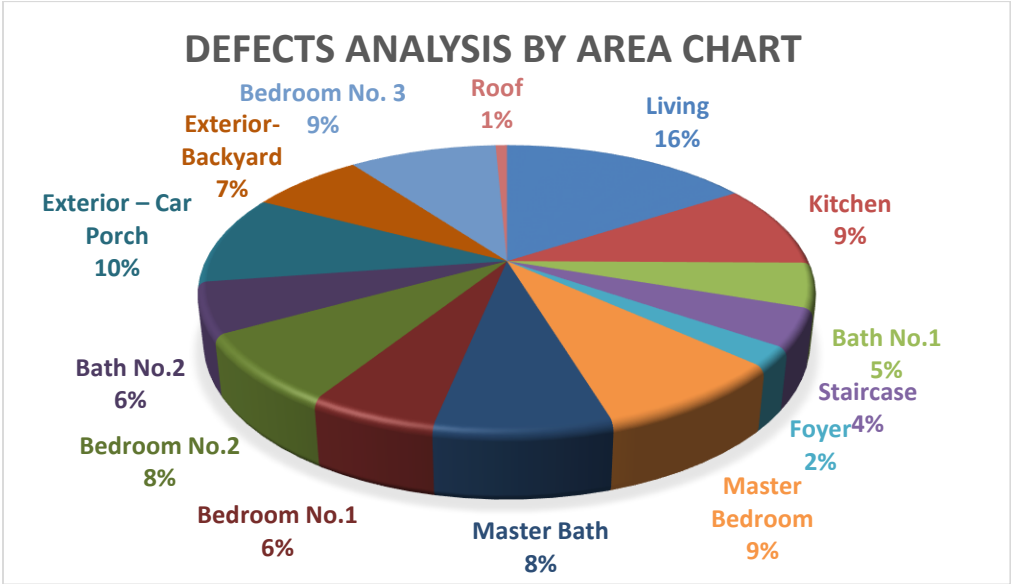
This inspection report is limited to deficiencies present at the time of the inspection. Roof, mechanical equipment, plumbing and electrical systems often fail without warning. New deficiencies can develop in buildings at any time, especially in buildings which may lie vacant.

No responsibility is accepted in the event that the Report is used for any other purpose.

## 2: REPORT SUMMARY & ANALYSIS

Defects Analysis by Area Table

NO	AREA	NO. OF DEFECTS
1	Living	22
2	Kitchen	13
3	Bath No.1	7
4	Staircase	6
5	Foyer	3
6	Master Bedroom	12
7	Master Bath	11
8	Bedroom No.1	8
9	Bedroom No.2	11
10	Bath No.2	8
11	Exterior – Car Porch	14
12	Exterior- Backyard	10
13	Bedroom No. 3	13
14	Roof	1
	TOTAL	<b>139</b>



Defects Analysis by Item Table

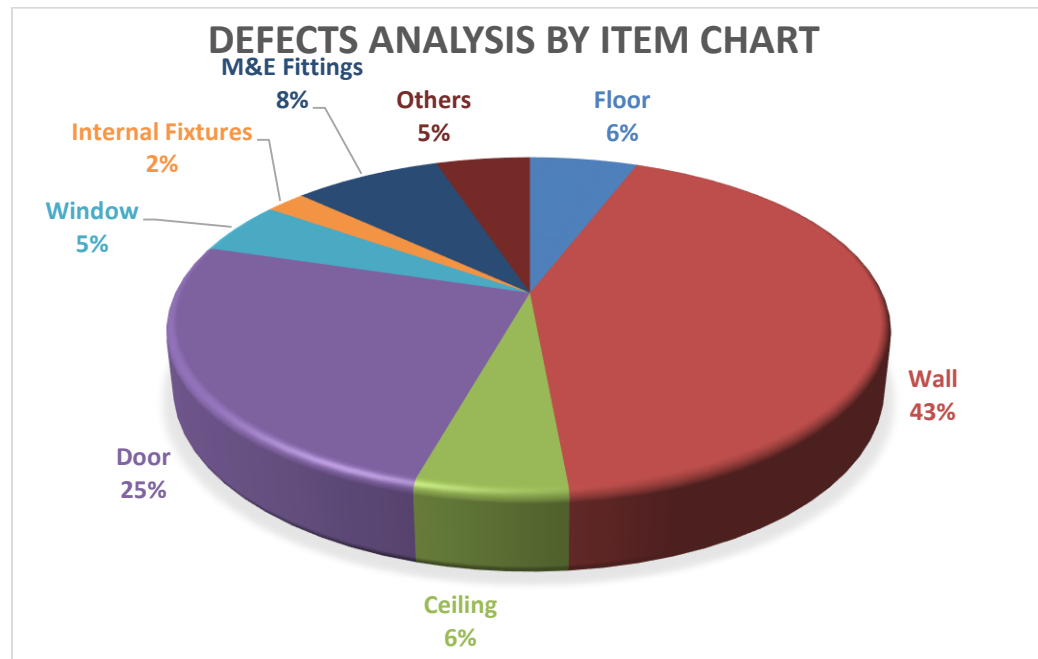
NO	ITEM	NO. OF DEFECTS
1	Floor	8
2	Wall	59
3	Ceiling	8
4	Door	35
5	Window	7
6	Internal Fixtures	3
7	M&E Fittings	11
8	Others	8
	TOTAL	139

Report Summary:

The pie charts compare the analysis of the defect area and item. It can be clearly seen that most of the defects are at the Living and the most defect items are for Wall.

In defect analysis by area, the Exterior contributes the most at 16% and for most defect by items will be for Wall with 43% of overall contribution. Clearly we can see the Walling issue will be the most concern defect in the house.

In conclusion, we can see the Living and Wall in the house must be taken extra attention for verification & rectification.



### 3: INTERIOR (LIVING)

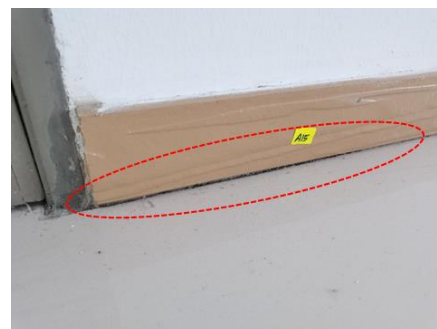
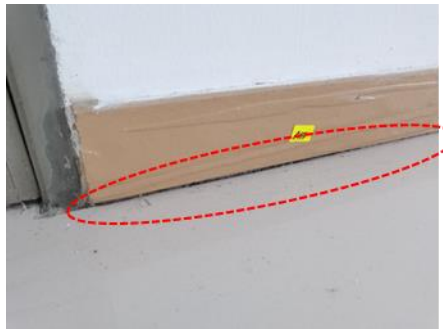
#### Observations

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##### 3.1.1 Floors

###### FINISHING

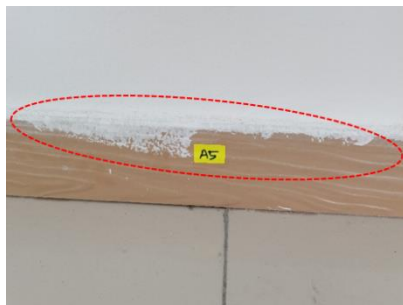
- a) Gap at floor tiles to skirting
  - Reference No : A15 (4 Locations)



##### 3.2.1 Wall

###### FINISHING

- a) Paint stain at skirting
  - Reference No : A5 (4 Locations)



## 4: INTERIOR (KITCHEN)

### Observations

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#### 4.1.1 Wall

##### FINISHING

- a) Paint stain at wall tiles
  - Reference No: B4 (2 Locations)



#### 4.1.2 Wall

##### CRACK & DAMAGES

- a) Chipped wall tiles
  - Reference No: B2





## 5: INTERIOR (BATHROOM #1)

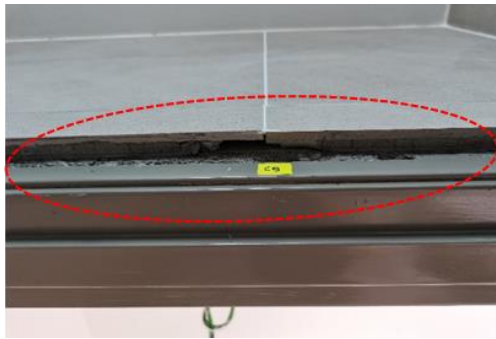
### Observations

---

#### 5.1.1 Wall

##### FINISHING

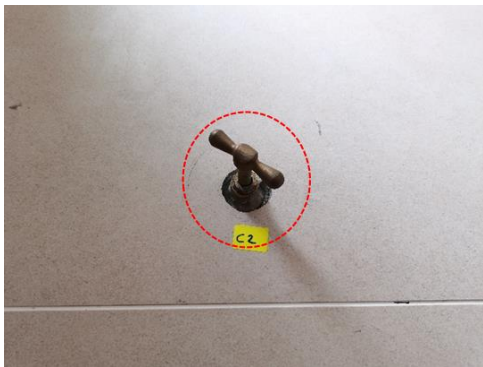
- a) Poor wall tiles assembly finishing
  - Reference No: C5



#### 5.2.1 Mechanical & Electrical Fittings

##### MATERIAL & DAMAGES

- a) No grouting finishing at stopcock & shower rose inlet area.
  - Reference No : C2 (2 Locations)



## 6: INTERIOR (STAIRCASE)

### Observations

---

#### 6.1.1 Wall

##### FINISHING

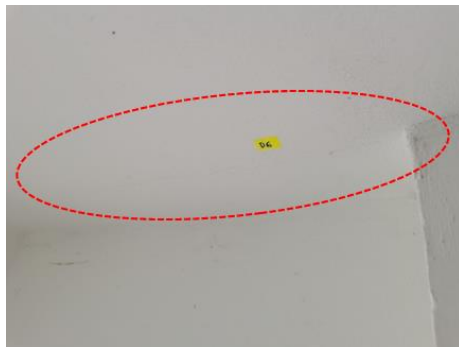
- a) Rough plaster finishing
  - Reference No : D3



#### 6.2.1 Ceiling

##### CRACK & DAMAGES

- a) Hairline crack at ceiling
  - Reference No : D6



## 7: INTERIOR (FOYER)

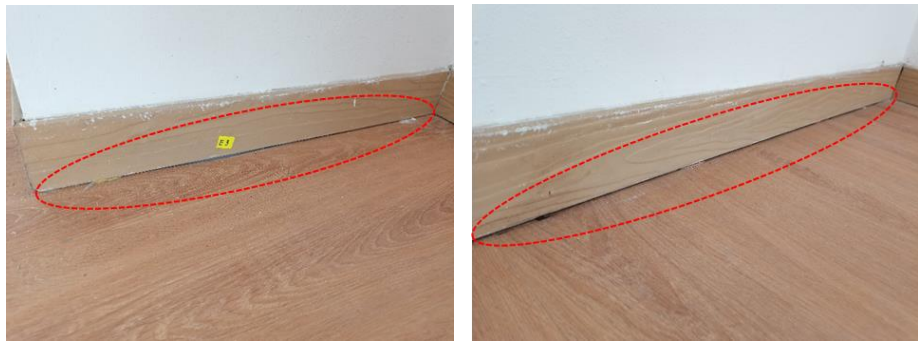
### Observations

---

#### 7.1.1 Floor

##### FINISHING

- a) Big gaps at lower floor skirting area.
  - Reference No : E3 (2 Locations)



#### 7.2.1 Ceiling

##### FINISHING

- a) Unpainted (after touch up) ceiling surface.
  - Reference No : E1



## 8: INTERIOR (MASTER BEDROOM)

### Observations

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#### 8.1.1 Floor

##### FINISHING

- a) Poor cement render finishing at 1<sup>st</sup> floor aircond compressor area.
  - Reference No : F9



#### 8.2.1 Door

##### MATERIAL & DAMAGES

- a) Paint stain at door frame
  - Reference No : F3



## 9: INTERIOR (MASTER BATH)

### Observations

---

#### 9.1.1 Wall

##### FINISHING

- a) Unfinished tiles installation at door frame
- Reference No : G6



#### 9.1.2 Wall

##### HOLLOWNESS

- a) Hollowness at sink table top
- Reference No : G3 (4 Locations)



## 10: INTERIOR (BEDROOM #1)

### Observations

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#### 10.1.1 Door

##### FUNCTIONALITY

- a) Doorknob not locking when door fully closed.
  - Reference No : H5



#### 10.3.1 Window

##### ALIGNMENT & EVENNESS

- a) Window frame touching to coping area
  - Reference No : H6



## 11: EXTERNAL (CAR PORCH)

### Observations

---

#### 11.1.1 Ceiling

##### CRACK & DAMAGES

- a) Ceiling damage at joint area.
  - Reference No : K10



#### 11.2.1 Fence

##### CRACK & DAMAGES

- a) Crack at fencing area.
  - Reference No : K11 (2 location)



### 3.4 SUMMARY

This chapter discuss about how the inspection was perform and the preparation for the report to be submitted to clients.



# CHAPTER 4: RECOMMENDATION

#### 4.1 PROBLEM AND RECOMMENDATION

Some of the problems in this study is the vital information such as building plan is not provided for the defect inspector. Its purpose is to ensure the building constructed as in plan. For example, the position of electrical outlet and switches follow what is stated in the layout plan. The inspector should ask the home owner for the building plan as a reference for inspection. The plan will ease the inspector to do an inspection.

Other problem is that the inspector did not provide rating system for the building. With defect rating, the home buyers will know the condition of their house. So that, the clients will be aware of defect condition. If the building element or building component is defected severely, the home owner will ask the developer to fix the problem before the expiry of defect liability period. The inspector may use QLASSIC rating system to be included in the report before submitted to clients.

# CHAPTER 5: CONCLUSION

## 5.1 CONCLUSION

As a conclusion, training module for house defect inspection is important to the inspectors in Akira Venture Enterprise as their guidelines to perform defect inspection. The performance of inspection will become smooth when the inspector understands the standard for every element and know how uses the right tools for every defect.

With this training module, the inspector will be detecting the defect according to the QLASSIC. The home owner might able to check the defect by themselves but it is may not accurate and not realize there may defect in the building because they are not professionally trained to detect the defect. With the service provided by professional inspector will help home owner to give them justice for their home.

## 5.2 REFERENCE

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