



## **DEVELOPMENT CHECKLIST (REVISION 1, FEBRUARY 2018)**

**PROJECT:**

**CONSULTANT:**

**FILLED BY :**

**DATE :**

## DEVELOPMENT CHECKLIST



Category:

### **PART 1**

No.	Category	To be validated by
1.	Philosophy of Development & Design Component	<i>JPPHB Faculty of Built Environment</i>

### **PART 2**

No.	Category	To be validated by
1.	Environmental Impact Assessment & Requirements	<i>Unit Lanskap JPPHB Rimba Ilmu Rimba Project Water Warriors Zero Waste Campaign (ZWC)</i>
2.	Social Impact Assessment & Requirements	<i>JPPHB Neighbouring buildings Members of staff and students</i>
3.	Heritage Conservation and Impact	<i>JPPHB Faculty of Built Environment</i>
4.	Accessibility Assessment & Requirements	<i>Special needs unit under DVC (Student Affairs) Faculty of Built Environment JPPHB</i>
5.	Internet/IT Requirements	<i>PTM JPPHB Faculty of Engineering Faculty of Computer Science and IT</i>
6.	Green Technologies & Waste Management	<i>PTM JPPHB Faculty of Engineering Faculty of Computer Science and IT UM Sustainable Development Network UM Living Lab Zero Waste Campaign (ZWC)</i>
7.	Research/Advanced Content(s)	<i>Special unit under DVC (Research &amp; Innovation)</i>
8.	Safety Requirements	<i>JPPHB Pejabat Keselamatan Faculty of Engineering</i>

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9.	Parking & Traffic Impact Assessment	<i>JPPHB Pejabat Keselamatan Faculty of Engineering</i>
10.	Utility and Infrastructure requirements	<i>JPPHB Faculty of Engineering</i>

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### PART 1

#### 1. Philosophy of Development & Design Component

##### *Requirements*

1.1 Explain the philosophy behind your proposal development. What would the facility aspire to achieve or overcome?

1.2 What design component(s) that you think are unique to your proposal?

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**PART 2**

**1. Environmental Impact Assessment & Requirements**

<i>Requirements</i>	<b>Yes</b>	<b>No</b>	Remarks
1.1.1 Have you read the biodiversity report of the area (if available)?			
1.1.2 Have you read UM's Eco-campus Blueprint?			
1.1.3 Have you read Manual Saliran Mesra Alam Malaysia (MSMA)?			
1.2 List of environmental collateral for this project:  <i>1.2.1 Acreage of greeneries cleared;</i> <i>1.2.2 Number of trees measuring more than 30cm Diameter at Breast Height. (measured at the stump 1m from ground level);</i> <i>1.2.3 List of native and/or rare, threatened and endangered species;</i> <i>1.2.4. Natural flowing water or any water sources affected;</i> <i>1.2.5 Slope clearing involved?</i> <i>1.2.6 Any other environmental element(s) affected?</i> <i>1.2.7 Important ecological functions of the project site (e.g. nutrient source through flooding, stormwater retention and etc.)</i> <i>1.2.8 Biodiversity mapping of the area and its conservation (if relevant)?</i> <i>1.2.9 Scenic areas affected?</i>			
1.3 Will the project cause any pollution to the campus and its surrounding communities? (e.g. Solid and hazardous waste, atmospheric indoor and outdoor pollution, water pollution, soil pollution)			
1.4 Will the project increase the carbon footprint of the campus and its surrounding areas?			
1.5 List of environmental addition/requirements:			

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<p>1.5.1 Protect and retain all trees that are 30 cm or more Diameter at Breast Height (DBH) or of rare/ threatened/ endangered species from injury or removal except where permission with condition has been issued.</p> <p>1.5.2 Landscape design and planning. To provide outdoor space greater than or equal to 30% of the total site area (including building footprint). A minimum of 25% of that outdoor space must be vegetated (turf grass does not count as vegetation) or have overhead vegetated canopy.</p> <p>1.5.3. List of trees to be planted for the project and the number of trees. (plant the landscaped site area using native trees only);</p> <p>1.5.4 Shrubs-type of landscape and the forecasted maintenance costs (annual);</p> <p>1.5.5 At least 20% of innovative green area elements integrated within the building; (water saving through special water tap, refer Thimble Project by UM Sustainable Development Network)</p> <p>1.5.6 If surface parking is permitted and provided, plant shade trees throughout the parking lot interior at a minimum ratio of one tree planted for every five parking spaces supplied;</p> <p>1.5.7 Types of grass to be planted and their specifications;</p> <p>1.5.8 Water features and artificial water features?</p> <p>1.5.9 Plan on pollution control and other environmental mitigating measures;</p> <p>1.5.10 Water bodies. For example, natural and manmade features.</p> <ul style="list-style-type: none"> <li>- Integrated and long-term water management policy in UM (i.e. lake, rivers and groundwater);</li> <li>- Aim for Class I – II for all water bodies in UM</li> <li>- Consistent and integrated database and monitoring of water related data (e.g. surface water and groundwater flow, water quality, water consumption, water harvesting, etc.)</li> <li>- Increase use of greener, natural and inclusive technologies to manage water related needs in UM</li> </ul>			
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### 2. Social Impact Assessment & Requirements

<i>Requirements</i>	<b>Yes</b>	<b>No</b>	Remarks
<p>2.1 How would this project impact positively its surrounding?</p> <p><i>2.1.1 Provide a better place for users to socialize (communal area)</i></p> <p><i>2.1.2 Siting of buildings - To encourage the siting of buildings to maximize solar access, to establish privacy and minimize adverse impacts on existing adjoining buildings and future buildings sites</i></p> <p><i>2.1.3 Fencing - To assist in creating, visual amenity, streetscape, and traffic safety.</i></p> <p><i>2.1.4. Privacy - To create awareness of the need for privacy .and to incorporate privacy consideration into the design process.</i></p>			
<p>2.2 What are the negative impact(s) that the University of Malaya should be aware of?</p> <p><i>2.2.1 Excessive noise during odd hours?</i></p> <p><i>2.2.2 Excessive number of outsider(s) during events and will this be risky to UM's community?</i></p> <p><i>2.2.3 How will this project impacts its surrounding during the construction period?</i></p> <p><i>2.24 How many workers will be involved, and where will they be placed in?</i></p>			

### 3. Heritage Conservation and Impact

<i>Requirements</i>	<b>Yes</b>	<b>No</b>	Remarks
<p>3.1 Does the project involve a heritage building or site, or within a 100m of such sites?</p> <p><i>3.1.1 To preserve all the heritage components;</i></p> <p><i>3.1.2 Are there any statues/plaques/historic item or features in the project's site?</i></p> <p><i>3.1.3 Is the design of the proposed project reflects University of Malaya's rich history?</i></p>			

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### 4. Accessibility Assessment & Requirements

<i>Requirements</i>	<b>Yes</b>	<b>No</b>	Remarks
4.1 What are the accessibility elements in the project?  <i>4.1.1 Universal design access : to comply to the MS1184:2014 (Malaysian Standard Universal Design and Accessibility in the Built Environment – Code of practice;</i> <i>4.1.2 Universal Building By-Laws</i>			
4.2 Access for special groups such as the OKU's, and elders.			
4.3 Access for children			
4.4 Maps and signage.  <i>4.4.1 Map of floor area.</i> <i>4.4.2 Signage and signage design.</i>			
4.5 Room & storage for cleaning contractors			
4.5 Accessibility of support and maintenance?  <i>4.5.1 Access for garbage collection.</i> <i>4.5.2 Access for emergency services.</i> <i>4.5.3 Access for events management.</i>			



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### 5. Internet/IT Requirements

<i>Requirements</i>	<b>Yes</b>	<b>No</b>	Remarks
<p>5.1 Internet speeds, server rooms, firewall, and Wi-Fi coverage.</p> <p><i>5.1.1 What is the minimum and maximum internet speeds forecasted for the said design?</i></p> <p><i>5.1.2 Network topology map?</i></p> <p><i>5.1.3 Redundancy scheme?</i></p>			
<p>5.2 Internet of Things (IoT) readiness.</p> <p><i>5.2.1 Utilities equipment – split unit air-conditioning units, dedicated electric meters, lighting, air handling units – are all IoT ready in terms of interfacing compatibility and connectivity</i></p>			
<p>5.3 Design Requirement in General (but not limited to) :</p> <p><i>5.3.1 Structured Cabling System (SCS);</i></p> <p><i>5.3.2 Network Active Equipment System (NET)</i></p> <p style="margin-left: 20px;"><i>a) Core Switch;</i></p> <p style="margin-left: 20px;"><i>b) Distribution/Building Switch;</i></p> <p style="margin-left: 20px;"><i>c) Access/Floor Switch.</i></p> <p><i>5.3.3 UPS System (UPSS).</i></p> <p><i>5.3.4 Wireless Access Point System (WAPS).</i></p> <p style="margin-left: 20px;"><i>a) Wireless Controller;</i></p> <p style="margin-left: 20px;"><i>b) Wireless Access Point.</i></p>			

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### 6. Green Technologies & Waste Management

<i>Requirements</i>	<b>Yes</b>	<b>No</b>	Remarks
6.1 Have you read GBI rating criterias?			
6.2 Sustainability Strategy – Passive Design.  <i>6.2.1 Sun orientation building composition;</i> <i>6.2.2 Natural ventilated spaces;</i> <i>6.2.3 Building shapes and facades;</i> <i>6.2.3 Natural cooling system;</i> <i>6.2.5 Natural lighting system.</i>			
6.2 Sustainability Strategy – Active Design.  <i>6.2.1 Wind turbine;</i> <i>6.2.2 Solar Power;</i> <i>6.2.3 Building materials e.g. Low-E glass, low heat absorb brick;</i> <i>6.2.4. Rainwater harvesting for irrigation;</i> <i>6.2.5 Greywater harvesting for flushing etc.;</i> <i>6.2.6 Equipment with "green label".</i>			
6.3 Development should be eligible to GBI (Green Building Index) Rating			
6.3 Waste Management  <i>6.3.1 Dedicated recycling bins and collection area(s)?</i> <i>6.3.2 Wastewater treatment;</i> <i>6.3.3 Sewage?</i> <i>6.3.4 Wetland?</i> <i>6.3.5 Oil and grease trap?</i> <i>6.3.6 No direct discharge?</i>			
6.4 Awareness posters and instructions?			
6.5 Rainwater Management .  <i>6.5.1 Surface water run-off and on-site detention pond</i> <i>6.5.2 Usage of material that allows for infiltration of fluids (grasscrete/porous asphalt pavement/permeable pavers) for exposed area such as car parking, pedestrian walkways, etc.</i>			

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### 7. Research/Advanced Content(s)

<i>Requirements</i>	<b>Yes</b>	<b>No</b>	Remarks
7.1 Does your proposed development contain advanced/research-based content? If yes, please describe what they are;			

### 8. Safety Requirements

<i>Requirements</i>	<b>Yes</b>	<b>No</b>	Remarks
8.1 What are the safety features incorporated in the development?  <i>8.1.1 Safety of users (access cards, CCTV, gates);</i> <i>8.1.2 Safety of visitors/users (24-hour security personnel, panic buttons);</i> <i>8.1.3. Automatic motion sensitive lighting?</i> <i>8.1.4 Fire assembly points;</i> <i>8.1.5 Gratings on exposed drains;</i> <i>8.1.6 Special requirements for children?</i> <i>8.1.7. Fencing/Guarded?</i>			
8.2 Fire Requirement : to comply all requirements by BOMBA.			
8.3 Crime Prevention Sensitivity Design.  <i>8.3.1 Visibility ;</i> <i>8.3.2 No dead-end roads/pedestrian walks;</i> <i>8.3.3 Avoiding dark and quiet spaces;</i> <i>8.3.4 Infrastructure and design that contributing to crime activities .</i>			

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### 9. Parking & Traffic Impact Assessment

<i>Requirements</i>	<b>Yes</b>	<b>No</b>	Remarks
9.1 How many parking spaces and the ratio of parking to residences/users?  9.1.1 <i>Parking availability indicator and LED board?</i> 9.1.2 <i>Study of ingress and traffic movement? Potential bottlenecks?</i> 9.1.3 <i>Speed humps requirements?</i> 9.1.4 <i>Pedestrian access?</i> 9.1.5 <i>Cycling access?</i> 9.1.6 <i>Park &amp; Ride system?</i> 9.1.7 <i>Traffic flow (Ring road, one/two ways, cul-de-sac)</i> 9.1.8 <i>Driveways- To ensure adequate access at all times in all seasons, aid visual amenity and minimize private and public maintenance.</i>			
9.2 Public transport access.  9.2.1 <i>Bus stop?</i> 9.2.2 <i>Bus stop with wheelchair accessibility?</i> 9.2.3 <i>Designated public transport lanes?</i>			
9.3 Road Hierarchy.  9.3.1 <i>Primary Road;</i> 9.3.2 <i>Secondary Road;</i> 9.3.3 <i>Back lane road .</i>			

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### 10. Utility and Infrastructure requirements

<i>Requirements</i>	<b>Yes</b>	<b>No</b>	Remarks
10.1 Existing Infrastructure & Utilities.  <i>10.1.1 Should take into count existing utilities and infrastructures capability. Any additional costs involved should be included in the proposal.</i> <i>10.1.2 All existing infrastructure to be improved with the new development.</i>			
10.2 New Infrastructure & Utilities.  <i>10.2.1 Detention Pond;</i> <i>10.2.2 Septic tank;</i> <i>10.2.3 Sewage Plant;</i> <i>10.2.4 TNB Substations;</i> <i>10.2.5 Service Protocol Facilities.</i>			
10.3 Monitoring System.  <i>10.3.1 Water source and usage, electric source and usage online digital meter.</i>			
10.4 Underground mapping.			