

## Part 1 Energy Efficiency

### NRB 1-4 Natural Ventilation / Mechanical Ventilation

Actual Assessment Submission Site Verification Submission 

Criteria	Credit Available	Credit Claimed
(a) Natural Ventilation		
(i) Building layout with the cross ventilation	10	
(ii) Ventilation simulation modelling	10	
OR		
(b) Mechanical Ventilation	15	

#### Strategies:

**Documentary Evidences:**

*Order of documents to be submitted accordingly and clearly labeled.*

	Actual Assessment	Submitter	Assessor
<i>1-4(a)(i) Building layout with the cross ventilation</i>			
1.	Architectural plan layouts showing the units / rooms of all blocks with highlights of those with north and south window openings.	<input type="checkbox"/>	<input type="checkbox"/>
2.	Calculation showing the percentage of units or rooms with window openings facing north and south directions in the prescribed formats as shown in Table 1-4(a).	<input type="checkbox"/>	<input type="checkbox"/>
<i>1-4(a)(ii) Ventilation simulation modelling</i>			
1.	Ventilation simulation modelling result and analysis or wind tunnel testing to identify the most effective building design and layout which achieve average wind velocity at least 0.6m/s or more.	<input type="checkbox"/>	<input type="checkbox"/>
2.	A summary of the recommendation from the ventilation simulation report.	<input type="checkbox"/>	<input type="checkbox"/>
3.	Architectural plan layout highlights the implementation base on the recommendation from the report.	<input type="checkbox"/>	<input type="checkbox"/>
<i>1-4(b) Mechanical Ventilation</i>			
1.	Plan layout demarcate the area with mechanical ventilation system.	<input type="checkbox"/>	<input type="checkbox"/>
2.	The overall design and drawings for mechanical ventilation system to make up the required outdoor air quantity into the building at desire fan power limit.	<input type="checkbox"/>	<input type="checkbox"/>
3.	Detailed calculations showing the fan power improvement.	<input type="checkbox"/>	<input type="checkbox"/>
4.	Product catalogue of the fan power used.	<input type="checkbox"/>	<input type="checkbox"/>

	Site Verification	Submitter	Assessor
<i>1-4(a)(i) Building layout with the cross ventilation</i>			
1.	As-built architectural plan layouts showing the units / rooms of all blocks with highlights of those with north and south window openings.	<input type="checkbox"/>	<input type="checkbox"/>
2.	Calculation showing the percentage of units or rooms with window openings facing north and south directions in the prescribed formats as shown in Table 1-4(a).	<input type="checkbox"/>	<input type="checkbox"/>
3.	Describe any deviations or changes to the AA submission.	<input type="checkbox"/>	<input type="checkbox"/>
<i>1-4(a)(ii) Ventilation simulation modelling</i>			
1.	Ventilation simulation modelling result and analysis or wind tunnel testing to identify the most effective building design and layout which achieve average wind velocity at least 0.6m/s or more.	<input type="checkbox"/>	<input type="checkbox"/>
2.	A summary of the recommendation from the ventilation simulation report.	<input type="checkbox"/>	<input type="checkbox"/>
3.	As-built architectural plan layout highlights the implementation base on the recommendation from the report.	<input type="checkbox"/>	<input type="checkbox"/>
4.	Describe any deviations or changes to the AA submission.	<input type="checkbox"/>	<input type="checkbox"/>
<i>1-4(b) Mechanical Ventilation</i>			
1.	The overall design and drawings for mechanical ventilation system to make up the required outdoor air quantity into the building at desire fan power limit.	<input type="checkbox"/>	<input type="checkbox"/>
2.	Detailed calculations showing the fan power improvement.	<input type="checkbox"/>	<input type="checkbox"/>
3.	Product catalogue of the fan power used and its purchase and delivery order.	<input type="checkbox"/>	<input type="checkbox"/>
4.	Photographic evidences.	<input type="checkbox"/>	<input type="checkbox"/>
5.	Describe any deviations or changes to the AA submission.	<input type="checkbox"/>	<input type="checkbox"/>

