

Complied to DOSH & NIOSH Heat Stress-IAQ measurement needs

ONE-STOP Indoor Environment Quality (IEQ) Monitor Solution

Human Environment Comfort is affected by combination of Indoor Air Quality, Thermal Environment Comfort, Light Quality & Acoustic/Sound Comfort.



Thermal Environment Comfort

Thermal Comfort: PMV, PPD, MRT
Heat Stress: WBGT, PHS
Air Flow: Air Speed, Volume Flow, Air Change
Air Temperature, R. Humidity, Dew point, .etc



Indoor Air Quality, IAQ

PM10 Particles
CO₂, CO, TVOC, HCHO, O₂, O₃
& others > 30 types of combustible, toxics & non-toxics gases



Light & Sound Quality

Lux, UVA, UVB, IR, PAR
Global Solar Radiation
Day Light Factor (DF)
UV Index
UV/Lux Ratio



Sound Level



Heat Flux & U-Value



Others Environment Parameter & Indexes

Air Flow, Pressure, Differential Pressure & .etc

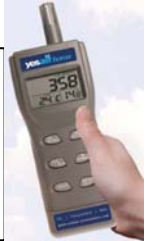
**ONE-STOP
 Green Building Index (GBI)
 Indoor Environment Quality (IEQ) Monitor Solution**



Cigarette Smoke Detector & System



IAQ Meter (CO₂, CO, Formaldehyde, TVOC, O₃, PM10, Temperature & Humidity)



**GREEN BUILDING INDEX
 ASSESSMENT CRITERIA**

EQ	INDOOR ENVIRONMENTAL QUALITY	
Air Quality		
EQ1	Minimum IAQ Performance	1
EQ2	Environmental Tobacco Smoke (ETS) Control	1
EQ3	Carbon Dioxide Monitoring and Control	1
EQ4	Indoor Air Pollutants	2
EQ5	Mould Prevention	1
Thermal Comfort		
EQ6	Thermal Comfort: Controllability of Systems	2
EQ7	Air Change Effectiveness	1
Lighting, Visual & Acoustic Comfort		
EQ8	Daylighting	2
EQ9	Daylight Glare Control	1
EQ10	Electric Lighting Levels	1
EQ11	High Frequency Ballasts	1
EQ12	External Views	2
EQ13	Internal Noise Levels	1
Verification		
EQ14	IAQ Before/During Occupancy	2
EQ15	Occupancy Comfort Survey: Verification	2



CO₂/CO Monitoring & Control System & Transmitter



Lux & Daylight Factor Meter (DF)



Thermal Comfort System: Temperature, R. Humidity, Mean Radiant Temperature, Airspeed, PMV, PPD calculation & Simulation.



Sound Level meter

Green Building Index (GBI) Assessment Tools



Time	Temp (°C)	Humidity (%)	CO2 (ppm)	PM10 (µg/m³)	PM2.5 (µg/m³)
1	28.07	50.7	18.75	13.86	2.797
2	28.19	50.4	18.11	13.83	2.808
3	28.38	51.4	18.81	13.88	2.878
4	28.55	51.3	19.26	14.03	2.948
5	28.67	50.3	19.26	14.12	2.988
6	28.15	49.8	19.27	14.23	2.998
7	28.38	50.7	19.27	14.25	2.988
8	28.45	49.8	19.27	14.29	2.951
9	28.07	49.3	19.26	14.30	2.970
10	28.15	49.8	19.27	14.35	2.938
11	28.28	49.8	19.27	14.75	2.938
12	28.45	49.8	19.27	14.98	2.887
13	28.07	49.8	19.26	15.06	2.789
14	28.15	49.8	19.26	15.13	2.987
15	28.38	50.2	19.26	15.18	2.882
16	28.55	50.8	19.26	15.18	2.884
17	28.67	50.8	19.26	15.12	2.787
18	28.15	49.8	19.26	15.08	2.709
19	28.38	50.2	19.26	15.02	2.847
20	28.45	49.8	19.26	14.96	2.886
21	28.67	49.3	19.26	14.95	2.958
22	28.15	49.8	19.26	14.95	2.938
23	28.38	50.2	19.26	14.97	2.877
24	28.45	49.8	19.26	14.97	2.888
25	28.15	49.8	19.26	14.44	2.718
26	28.38	50.2	19.26	14.44	2.714
27	28.55	50.8	19.26	14.38	2.884
28	28.67	50.8	19.26	14.21	2.887
29	28.15	49.8	19.26	14.12	2.824
30	28.38	50.2	19.26	14.02	2.824
31	28.45	49.8	19.26	13.94	2.874
32	28.67	49.3	19.26	13.86	2.882



U-Value Measurement:

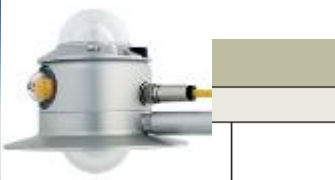
- Building Material Heat Resistant & U-Value Measurement for Building OTTV & RTTV calculations .
- Average Method, ISO9869
- Black Box Method

ITEM	AREA OF ASSESSMENT	Score	Weight
DESIGN & PERFORMANCE			
EE1 MINIMUM EE PERFORMANCE			
	Building envelope and installations to achieve minimum energy efficiency (EE) performance so as to reduce energy consumption in buildings, thus reducing CO2 emission to the atmosphere. Building Envelope to meet the following minimum EE requirements as stipulated in MS 1525:2007:		
	1) OTTV ≤ 50, RTTV ≤ 25. Submit calculations (use of BEIT software or other GBI approved software is acceptable)	1	2

REDUCE HEAT ISLAND EFFECT

SM6 GREENERY & ROOF

Reduce heat island (thermal gradient difference between developed impact on microclimate and human and wildlife habitat:



A) HARDSCAPE & GREENERY APPLICATION:

1) Provide any combination of the following courtyards, plazas and parking lots:

- Shade (within 5 years of occupancy),
- Paving materials with a Solar Reflectance Index (SRI) of at least 29
- Open grid pavement system.

B) ROOF APPLICATION:

1) Use roofing material with a Solar Reflectance Index (SRI) equal to or greater than the value in the table below for a minimum of 75% of the roof surface, OR

2) Install a vegetated roof for at least 50% of the roof area; OR

3) Install high albedo and vegetated roof surfaces that, in combination, meet the following criteria:

- (Area of SRI Roof / 0.75) + (Area of vegetated roof / 0.5) ≥ Total Roof Area
- Roof Type Slope SRI
- Low-Sloped Roof < 2:12 78
- Steep-Sloped Roof > 2:12 29

Albedometer:

- Roof Material & Roofing Albedo measurement
- Solar Reflectance Index, SRI Calculation

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