Guide to Indoor Air Quality monitoring for the WELL Building Standard

10 Concepts of WELL

- ❑ Air
- ❑ Water
- ❑ Nourishment
- ❑ Light
- ❑ Movement
- ❑ Thermal Comfort
- ❑ Materials
- ❑ Sound
- ❑ Mind
- ❑ Community

The key concepts of **Air** and **Thermal Comfort** are essential for human health, well-being and comfort. Continuous monitoring helps ensure that suitable conditions are consistently maintained across all occupied spaces.

Overview of WELL

The WELL Building Standard is designed to enhance the health, well-being and comfort of a building's occupants by optimising the building design and operation.

There are 10 concepts, each broken down into mandatory features (preconditions) and flexible features (optimisations) used to earn points and recognition.

IAQ Monitoring

Continuous monitoring of Indoor Air Quality (IAQ) can be used to help projects achieve preconditions as well as earning additional points in the flexible optimisations.

Compliance Pathways

IAQ monitoring can support a total of 8 features (5 for Air and 3 for Thermal Comfort). Whilst IAQ monitors are essential to achieve certain features they also provide effective pathways for several other features, as detailed on the next page.

WELL v2 Concept 1 - Air		Max Points	Supported by IAQ Monitoring
Pre-conditions			
A01	Air Quality	n/a	✓
A02	Smoke-Free Environment	n/a	
A03	Ventilation Design	n/a	✓
A04	Construction Pollution Management	n/a	
Flexible Optimisations			
A05	Enhanced Air Quality	4	✓
A06	Enhanced Ventilation Design	3	✓
A07	Operable Windows	2	
A08	Air Quality Monitoring and Awareness	2	✓
A09	Pollution Infiltration Management	2	
A10	Combustion Minimisation	1	
A11	Source Separation	1	
A12	Air Filtration	1	
A13	Enhanced Supply Air	1	
A14	Microbe and Mold Control	1	
	Total possible points	18	

WELL v2 Concept 6 - Thermal Comfort		Max Points	Supported by IAQ Monitoring
Pre-conditions			
T01	Thermal Performance	n/a	✓
Flexible Optimisations			
T02	Verified Thermal Comfort	3	
T03	Thermal Zoning	2	
T04	Individual Thermal Control	3	
T05	Radiant Thermal Comfort	2	
T06	Thermal Comfort Monitoring	1	✓
T07	Humidity Control	1	✓
T08	Enhanced Operable Windows	1	
T09	Outdoor Thermal Comfort	3	
	Total possible points	16	

WELL v2 - Pathways using IAQ Continuous Monitoring

Air Quality		Max Points	IAQ Monitors	How continuous monitoring is used to achieve preconditions and additional points
Pre-conditions				
A01	Air Quality	n/a	Sufficient	A01 includes annual measurement of PM2.5, PM10, TVOC, ozone and carbon monoxide. Data from IAQ monitors may be used for submission to the WELL digital platform.
A03	Ventilation Design	n/a	Sufficient	There are 4 possible compliance routes to meeting A03, one of which is continuous monitoring of carbon dioxide by IAQ monitors to verify the required threshold is being met.
Flexible Optimisations				
A05.1	Enhanced Air Quality	2	Sufficient	Data from IAQ monitors may be used for Part 1 of A05, for the measurement of PM2.5 and PM10.
A05.3	Enhanced Air Quality	1	Sufficient	Data from IAQ monitors may be used for Part 3 of A05, for the measurement of carbon monoxide and nitrogen dioxide.
A06.1	Enhanced Ventilation Design	2	Sufficient	As with A03, there are 4 possible compliance routes to meeting A06, one of which is continuous monitoring of carbon dioxide by IAQ monitors to verify the required threshold is being met.
A08.1	Air Quality Monitoring	1	Required	Part 1 requires continuous monitoring with IAQ monitors in compliance with the WELLv2 specification and covering a minimum of any 3 parameters from the list: a. PM2.5 or PM10 b. Carbon dioxide c. Carbon monoxide d. Ozone e. Nitrogen dioxide f. Total VOCs g. Formaldehyde
A08.2	Air Quality Awareness	1	Required	Part 2 requires the promotion of air quality awareness to building occupants through presentation of air quality data, either via display screens or a digital application made readily available to occupants. Part 1 is a prerequisite.

Thermal Comfort		Max Points	IAQ Monitors	How continuous monitoring is used to achieve preconditions and additional points
Pre-conditions				
T01.1	Thermal Performance	n/a	Sufficient	Part 1 has 2 compliance route options, one of which can be achieved using continuous monitoring with IAQ monitors measuring temperature.
T01.2	Thermal Performance	n/a	Sufficient	Part 2 also has 2 compliance route options, one of which can be achieved using continuous monitoring with IAQ monitors to meet the requirements of T06 described below.
Flexible Optimisations				
T06	Thermal Comfort Monitoring & Awareness	1	Required	Two requirements are necessary to earn 1 point: firstly, continuous monitoring of dry-bulb temperature and relative humidity in compliance with the WELLv2 specification; secondly, presentation of real-time temperature and relative humidity data, either via display screens or a digital application made readily available to occupants.
T07	Humidity Control	1	Sufficient	There are 3 possible compliance routes to meeting T07, one of which is continuous monitoring of relative humidity to verify humidity remains within the required thresholds. T06 is a prerequisite.

Total possible points	**9**

Calculating Number of Required Monitors

WELL v2 promotes the principle of continuous monitoring of air quality, ventilation and thermal comfort. Since environmental conditions can fluctuate significantly during occupied hours, real-time monitoring is required throughout occupied spaces.

The number of sample points required for a WELL v2 project is generally calculated based on the occupiable space within the defined project boundary.

Monitor Density / Spatial Coverage *	
Project Occupiable Space	# IAQ Monitors Required in Occupiable Space
0 - 3,250 m^2	1 monitor per 325 m^2 [3,500 sq.ft] with minimum of 2
3,250 - 25,000 m^2	1 monitor per 500 m^2 [5,400 sq.ft] with minimum of 10
> 25,000 m^2	1 monitor per 1,000 m^2 [10,800 sq.ft] with minimum of 50

* For detailed guidance on monitor density requirements, refer to the WELL Performance Verification Guidebook

Annual Calibration

WELL places high importance on consistency of performance for all sensors. The requirements for annual calibration or replacement are:

- ❑ All sensors measuring air quality parameters are recalibrated or replaced annually, and projects submit documentation attesting to their calibration or replacement annually through the WELL digital platform.
- ❑ All sensors measuring thermal comfort parameters are recalibrated or replaced every three years, and projects submit documentation attesting to their calibration or replacement every three years through the WELL digital platform.
- ❑ Note: field calibrations using a reference sensor are acceptable provided that the procedure allows the sensors to perform within manufacturer's listed specifications. The calibration period must capture a sufficient range and concentration of contaminant—either using known span gases or exposure to ambient pollution—to accurately perform adjustments.

Optimise WELL Recognition with the AirSentric WB55

The AirSentric WB55 from NuWave Sensors is a versatile IAQ monitor designed to adhere to the WELL Building Standard. The WB55 meets the **accuracy, resolution** and **sampling frequency** requirements of WELL v2 and is RESET Air certified.

AirSentric WB55 for WELL projects		
✓	Optimise WELL points	WB55's modular design and unique parameter range means that WB55 sensor data may be used to support 5 optimisation features in addition to the 3 pre-condition features.
✓	Live readings for WELL display screens	HEX dashboard with live readings & RAG status to achieve occupant awareness requirements specified in A08 and T06.
✓	Smooth re-calibration	Annual Calibration Programme to meet WELL v2 requirements with no downtime.
✓	Ease of data submission	Submitting data to the WELL digital platform simplified by flexible interface options including API, BACnet/Modbus and data export to csv.
✓	No subscription fees	HEX software license included in device purchase.
✓	Trusted brand	Established track record with projects targeting the WELL Building Standard

Scoping your WELL Project

To have your IAQ monitoring requirements reviewed, contact info@nuwavesensors.com.

This document was produced by NuWave Sensor Technology Ltd for guidance. For full details of WELLv2 requirements, it is recommended to read the official WELL guidance and consult with a WELL Accredited Professional.