Air

METHODOLOGY

FOR
DATA ANALYSIS v2.0

HEALTHY BUILDINGS
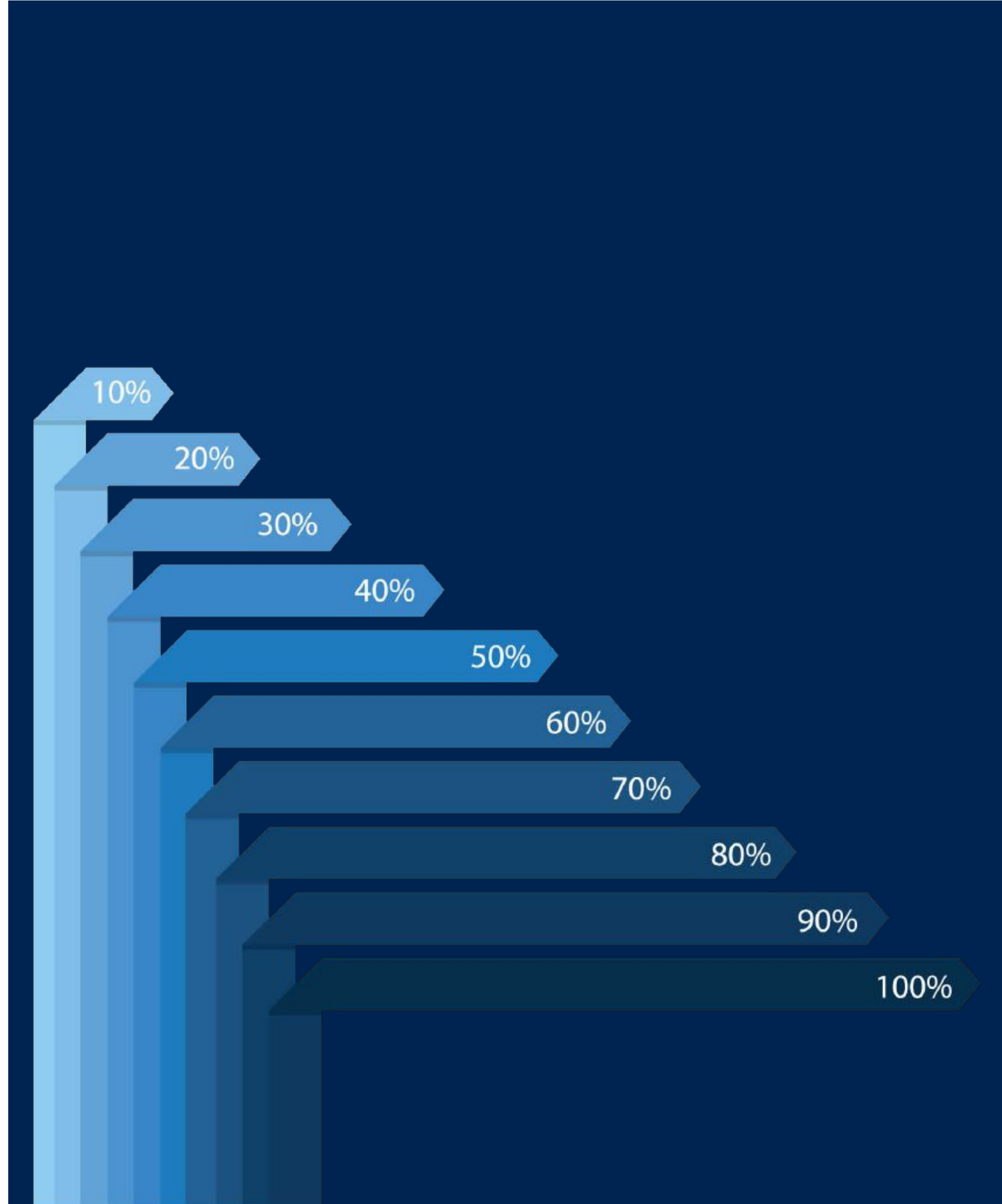
RESET STANDARD

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2.9.0 Preface

The **RESET™ Air Methodology for Data Analysis** is used to determine whether or not a **RESET™ Project** successfully achieves **RESET™ Air Certification**. The methodology uses daily averages from IAQ monitors and are calculated from hours of occupancy and compared against international IAQ health limits.

RESET™ Air for Commercial Interiors and **RESET™ Air for Core & Shell** both require data to be submitted to the **RESET™ Assessment Cloud** for data analysis using the **RESET™ Air Methodology for Data Analysis**.
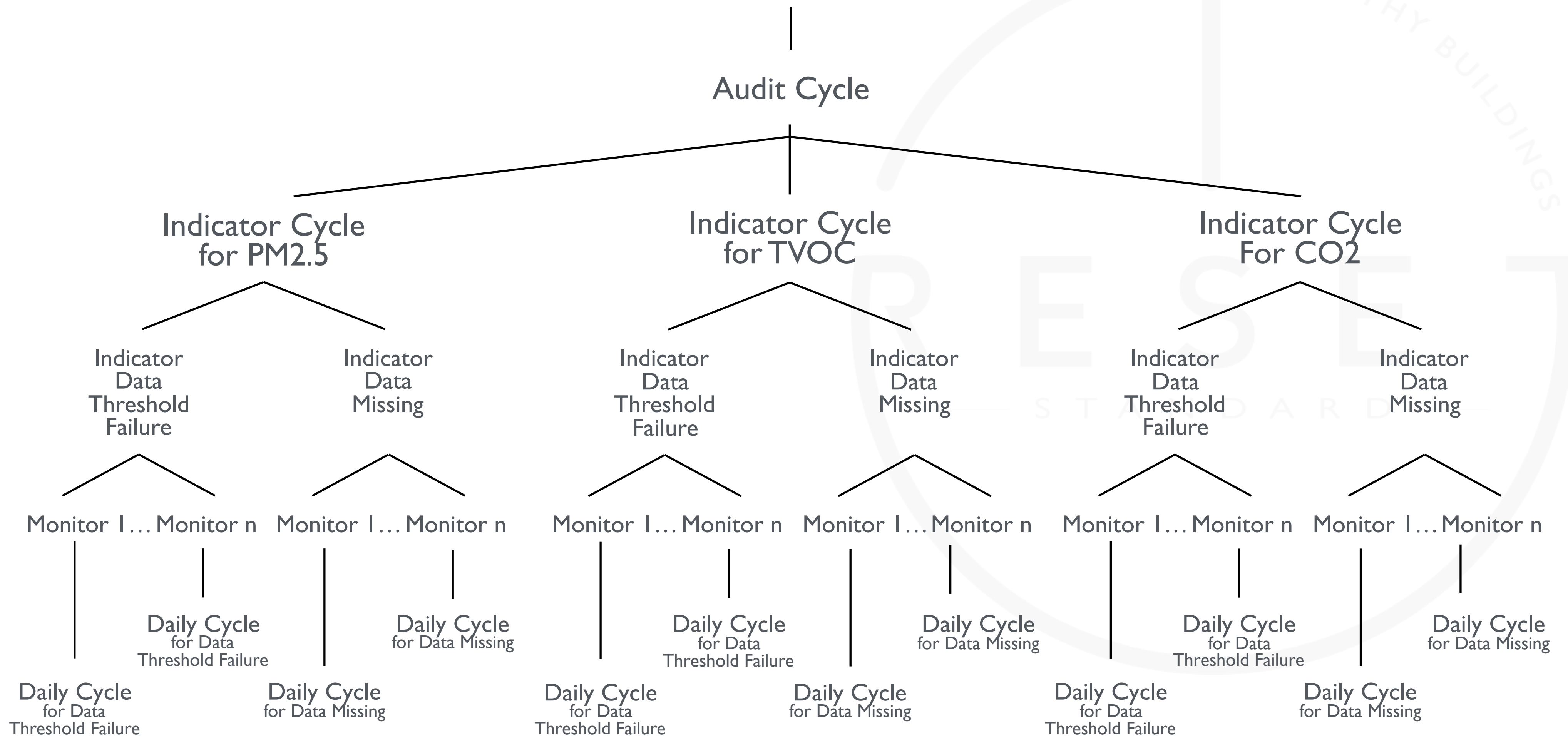
The methodology for data analysis is broken down into three tiers:

- **Audit Cycle**
- **Indicator Cycle**
- **Daily Cycle.**

The three tiers can be visualized in the **Algorithm Structure** (Section 2.9.1) and will be further expanded upon in the following sections.

RESET™ Air Certification

Audit Cycle

Indicator Cycle
for PM2.5

Indicator Cycle
for TVOC

Indicator Cycle
For CO2

Indicator Data Threshold Failure

Indicator Data Missing

Indicator Data Threshold Failure

Indicator Data Missing

Indicator Data Threshold Failure

Indicator Data Missing

Monitor 1…Monitor n

Daily Cycle for Data Threshold Failure

Daily Cycle for Data Missing

2.9.2 RESET™ Air Certification

RESET™ Air Certification

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Audit Cycle

RESET™ **Air** Certification for Commercial Interiors or RESET™ Air Certification for Core & Shell is achieved when the data from a RESET™ Project fulfills certain requirements.

These requirements include the following:
a. The data analysis must pass 3 consecutive **Audit Cycles** (Section 2.9.3).
b. If a project achieves initial certification, they are considered certified the following month.

2.9.2 RESET™ Air Certification

In addition to initial certification, the **RESET™ Air Methodology for Data Analysis** includes rules for maintaining the certification and other scenarios.

Maintaining Certification

c.   To maintain certification, Audit Cycles will continue after the project achieves initial certification

d.   When maintaining certification, the Audit Cycles will use the requirements from the version of the standard when the project achieves initial certification and is valid for 3 years.

Upgrading Certification Scenario

e.   If the project wants to upgrade to the latest version of the standard, please contact RESET™. After confirmation of upgrade, the Audit Cycles will start using the latest version's requirements the following Audit Cycle and will be valid for 3 years.

De-Certification Scenario

f.   Failing 3 consecutive Audit Cycles constitutes de-certification.

g.   The **RESET™ Project's** Certification will be revoked and an Audit Cycle for certification starts the next month.

Re-certify after De-Certification Scenario

h.   Certification will be granted again once the project passes 3 consecutive Audit Cycles.

2.9.3 Audit Cycle

Audit Cycle

Indicator Cycle
for TVOC

Indicator Cycle
for PM2.5

Indicator Cycle
For CO2
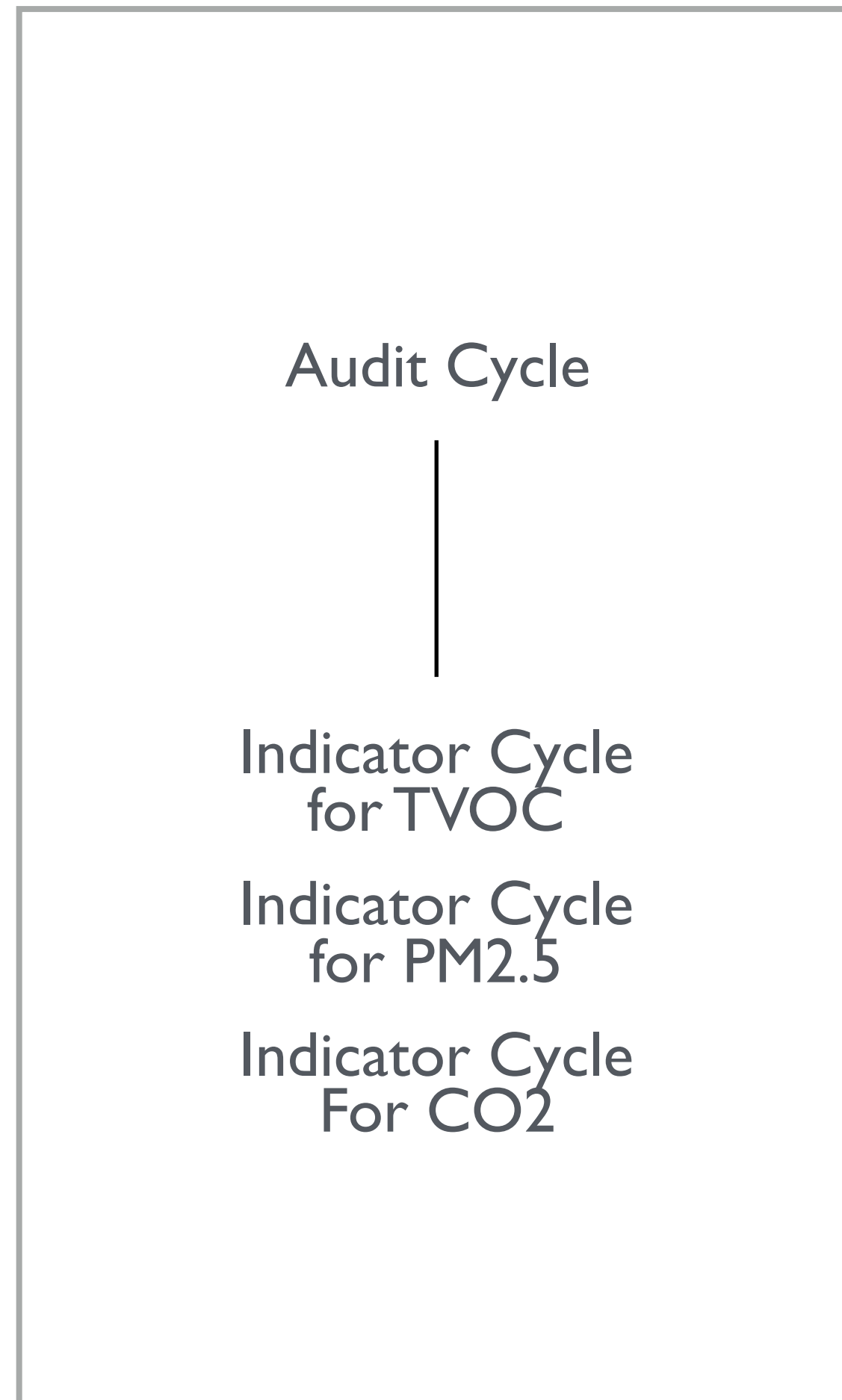
The Audit Cycle is the over-arching tier of the data analysis. A **RESET™ Air Project** receives certification when it can achieve a pass in three consecutive Audit Cycles.

The length of a Audit Cycle is a calendar month and it consists of a series of **Indicator Cycles** (Section 2.9.4).

To pass an Audit Cycle, all the required Indicator Cycles in the Audit Cycle must pass. Please refer to **Indicator Cycle** (Section 2.9.4) for more information.

2.9.4 Indicator Cycle

Indicator Cycle
for PM2.5

Indicator Data Threshold Failure

Indicator Data Missing
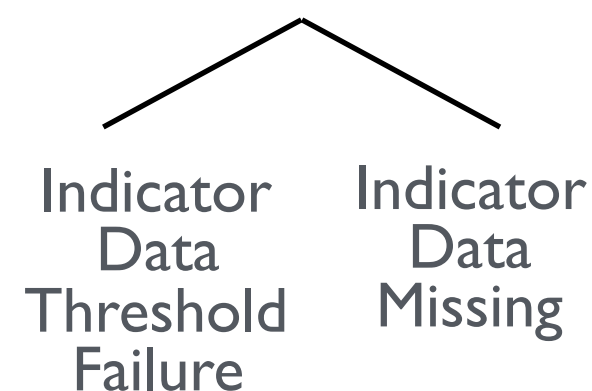
The Indicator Cycle is the middle tier of the data analysis. The Indicator breaks down the data from the air quality monitors into separate indicators (i.e. PM2.5, CO_2, TVOC). Please refer to the **RESET™ Air for Commercial Interiors** (Section 2.2) or **RESET™ Air for Core & Shell** (Section 2.4) for the required indicators accordingly.

Each Indicator Cycle is comprised of a month of **Daily Cycles** (Section 2.9.5) of a specific indicator from all the air quality monitors of that **RESET™ Air Project**.

There are two types of Indicator Cycles:
- **Indicator Cycle for Data Threshold Failure** (Section 2.9.4.1)
- **Indicator Cycle for Missing Data** (Section 2.9.4.2)

To pass the Indicator Cycle, the requirements from both the **Indicator Cycle for Data Threshold Failure** and the **Indicator Cycle for Missing Data** must be upheld.

2.9.4.1 Indicator Cycle for Data Threshold Failure

Indicator Cycle
for PM2.5

Indicator
Data
Threshold
Failure

The **Indicator Cycle for Data Threshold Failure** is one-half of the **Indicator Cycle** (Section 2.9.4). The data threshold is based on the figures outlined by RESET™ Air for Commercial Interiors (Section 2.2) or RESET™ Air for Core & Shell (Section 2.4) accordingly.

To pass an **Indicator Cycle for Data Threshold Failure**, the **Indicator Cycle** cannot have more than 10% of its **Daily Cycles** fail due to data threshold failure. Daily Cycles are rounded down. For more information on Daily Cycles - Data Threshold Failure, please refer to Section 2.9.5.1.

Only Daily Cycles that fail Data Threshold Failure will count against **Indicator Cycle for Data Threshold Failure**. If a Daily Cycle fails because of Data Missing, then it will not count against **Indicator Cycle for Data Threshold Failure**.

I.E. A project has one monitor. The PM2.5 Indicator Cycle has 21 Daily Cycles this month because there are 21 working days. 10% failure rate is 2.1 out of 20 Daily Cycles, so the maximum amount of failed Daily Cycles to pass Indicator Cycle for Data Threshold Failure is 2 Daily Cycles.

2.9.4.2 Indicator Cycle for Missing Data

Indicator Cycle
for PM2.5

Indicator
Data
Missing

The **Indicator Cycle for Missing Data** is one half of the **Indicator Cycle** (Section 2.9.4).

To pass an **Indicator Cycle for Missing Data**, the **Indicator Cycle** cannot have more than 20% of its **Daily Cycles** fail due to missing data. Daily Cycles are rounded down. For more information on Daily Cycles - Missing Data, please refer to Section 2.9.5.2.

Only Daily Cycles that fail Data Missing will count against **Indicator Cycle for Data Missing**. If a Daily Cycle fails because of Data Threshold Failure, then it will not count against **Indicator Cycle for Data Missing**.

i.e. *A project has 3 monitors. The PM2.5 Indicator Cycle has 66 Daily Cycles this month because there are 22 working days and 3 monitors. 20% failure rate is 13.2 out of 66 Daily Cycles, so the maximum amount of failed Daily Cycles due to Missing Data for this Indicator Cycle to still pass Indicator Cycle for Missing Data is 13 Daily Cycles.*

2.9.4.3 Indicator Cycle Basic Algorithm

Indicator Cycle
for PM2.5

Indicator
Data
Threshold
Failure

Indicator
Data
Missing
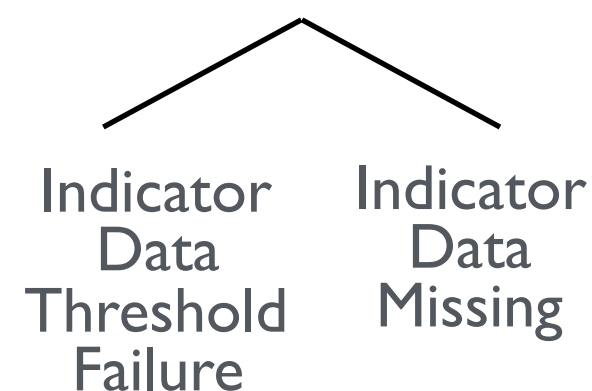
The **Indicator Cycle Basic Algorithm** is as follows:

For a specific indicator that is required by the relevant **RESET™ Air** Standard, there will be **N** number of Daily Cycles where **N** is the number of Daily Cycles in the month multiplied by the number of monitors in the project.
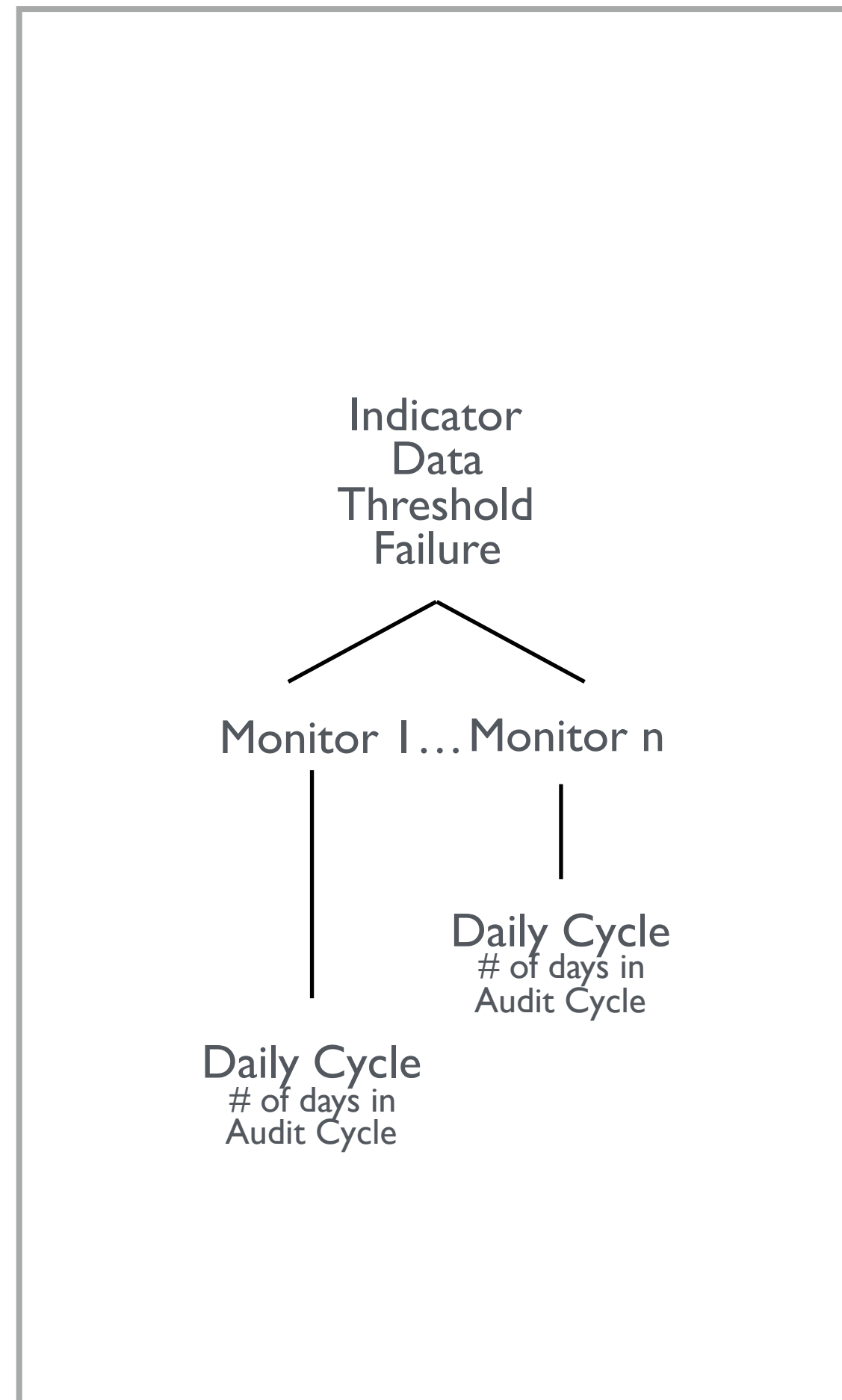
To determine whether or not the **Indicator Cycle** passes, **Indicator Cycle for Threshold Data Failure** and **Indicator Cycle for Missing Data** must both pass.

To pass **Indicator Cycle for Threshold Data Failure**, the number of total Daily Cycles from all the monitors in the project that fail the threshold, represented by **F**, cannot be more than 10%.

To pass **Indicator Cycle for Missing Data**, the number of total Daily Cycles from all the monitors in the project that fail due to missing data, represented by **M**, cannot be more than 20%.

Thus, passing for a **Indicator Cycle** = (F / N < 0.1) && (M / N < 0.2).

2.9.5 Daily Cycle

Indicator
Data
Threshold
Failure

Monitor 1...Monitor n

Daily Cycle
# of days in
Audit Cycle
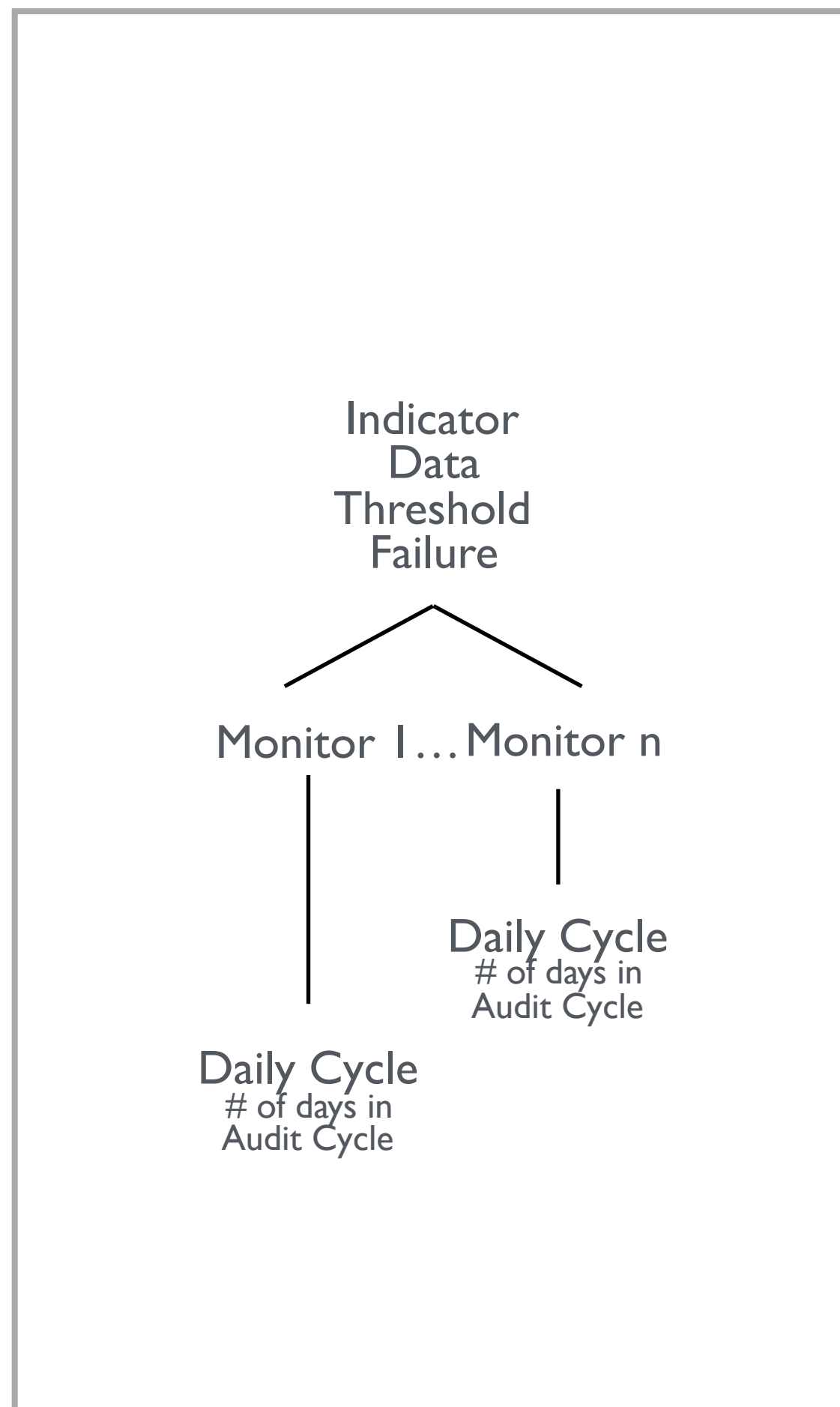
Daily Cycle
# of days in
Audit Cycle

The **Daily Cycle** is the foundational tier of the data analysis. The Daily Cycle measures the daily average of a specific indicator of a specific monitor. The specific indicator corresponds to the indicators in the **Indicator Cycle** (Section 2.9.4).

A **Daily Cycle** is comprised of 30 minute averaged data for a specific indicator of a specific monitor during the designated working hours in a day. A **RESET™ Air Accredited Data Provider** (Section 2.8) will be responsible for compiling and reporting the 30 minute averaged data.

There are two types of Daily Cycles:
- **Daily Cycle for Data Threshold Failure** (Section 2.9.5.1)
- **Daily Cycle for Missing Data** (Section 2.9.5.2)

2.9.5.1 Daily Cycle for Data Threshold Failure

Indicator
Data
Threshold
Failure

Monitor 1…Monitor n

Daily Cycle
# of days in
Audit Cycle
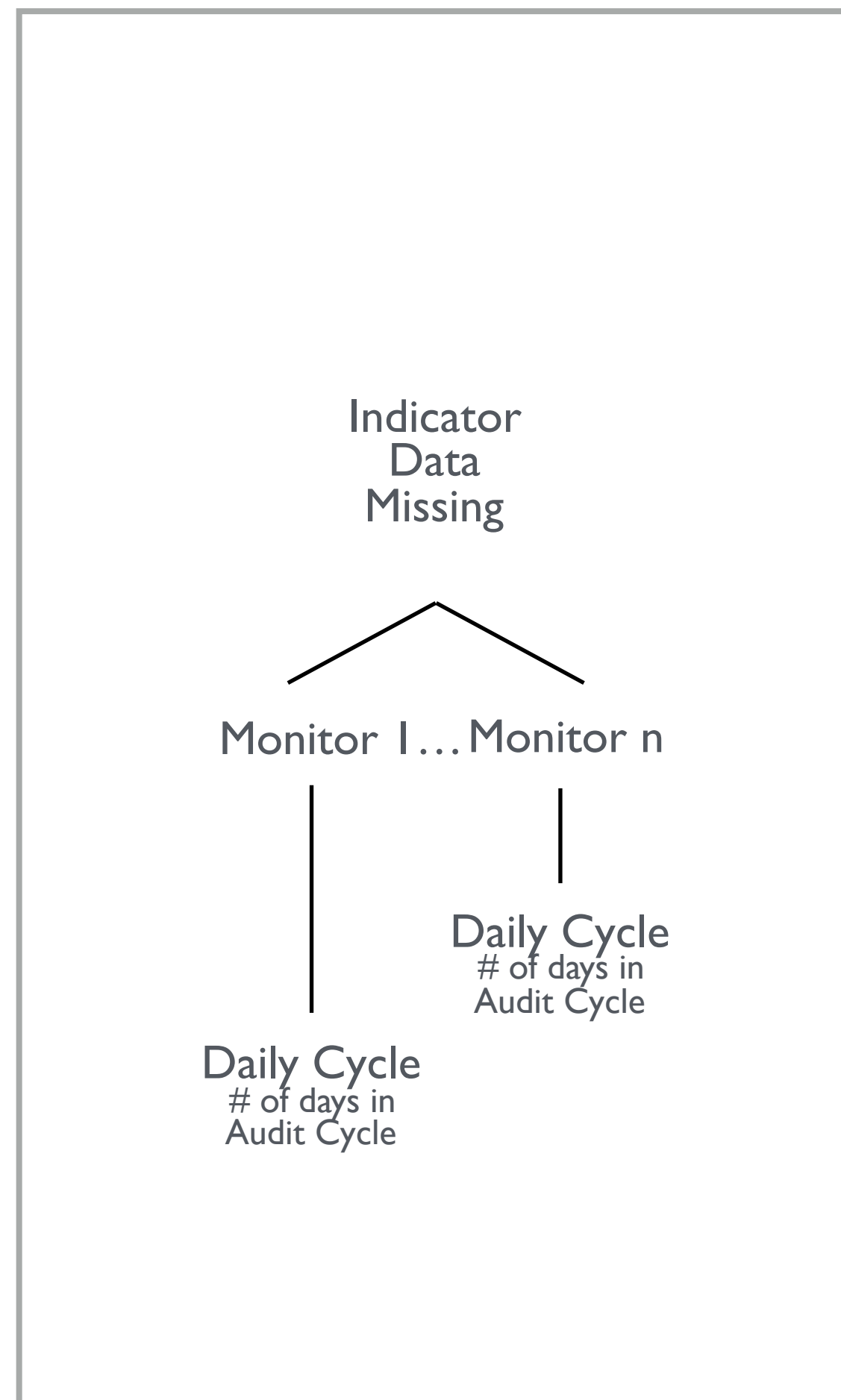
Daily Cycle
# of days in
Audit Cycle

Daily Cycle for Data Threshold Failure is applied to each monitor and then compiled together for the **Indicator Cycle for Data Threshold Failure** (Section 2.9.4.1).

To pass a **Daily Cycle for Data Threshold Failure**, the daily average comprised of 30 minute averaged data for a specific indicator of a specific monitor during working hours cannot exceed the limits listed in the **RESET™ Air for Commercial Interiors** (Section 2.2) for Commercial Interior projects and **RESET™ Air for Core & Shell** (Section 2.4) for Core & Shell projects.

Note that only data that is available is used for **Daily Cycle for Data Threshold Failure**. Any missing data is ignored in the calculation.

I.E. A Daily Cycle for a PM2.5 Indicator Cycle will have 16 30-minute averaged data points during a day with 8 working hours. The average of the 16 data points must not exceed the PM2.5 limits set in RESET™ Air for Commercial Interiors for Commercial Interior projects and RESET™ Air for Core & Shell for Core & Shell projects for this Daily Cycle for Data Threshold Failure to pass.

2.9.5.2 Daily Cycle for Missing Data

Indicator
Data
Missing

Monitor 1...Monitor n

Daily Cycle
# of days in
Audit Cycle

Daily Cycle
# of days in
Audit Cycle

Daily Cycle for Missing Data is applied to each monitor and then compiled together for the **Indicator Cycle for Missing Data** (Section 2.9.4.2).

To pass a **Daily Cycle for Missing Data**, the daily average comprised of 30 minute averaged data for a specific indicator of a specific monitor during working hours cannot exceed 4 consecutive hours of data missing in a day.

I.E. *A Daily Cycle for a PM2.5 Indicator Cycle will have 16 30-minute averaged data points during a day with 8 working hours. If 8 consecutive 30-minute averaged data points are missing, then Daily Cycle for Missing Data will not pass.*

2.9.6 Hours of Occupancy

Working Hours and Hours of Occupancy

   c. Working Hours are set to establish hours of occupancy. Only the daily average data during the assigned working hours will be used for the Data Audit.

   d. Hours of occupancy should include all times when the space is regularly occupied.

   e. Special days or holidays can be manually removed from the audit via a direct request to **RESET**™.

End of **RESET**™ **Air** METHODOLOGY
for Data Analysis