



# Aggregation Rules Handbook

## Introduction

The 2021 GRESB Real Estate Assessment requires Participants to report on Energy, GHG, Water, and Waste performance at the asset level. The intent of this document is to provide clarity on the calculations taking place in the GRESB Portal when aggregating asset-level data to property sub-type level data.

## Table of Content

This document includes the following items:

### I. Data Coverage

- A. Data Coverage (Area)
  - 1. *Landlord Controlled*
  - 2. *Tenant Controlled*
- B. Data Coverage (Time) | Data Availability
- C. Data Coverage (Area/Time)

### II. Like-for-Like

- A. LFL Change
- B. LFL Data Availability

### III. Intensities

- A. Energy
- B. GHG
- C. Water

## I. Data Coverage

GRESB evaluates data coverage through two dimensions: Area and Time.

- A. **Data Coverage (Area)** refers to the amount of space (expressed in % of the maximum space) covered by performance data points.
- B. **Data Coverage (Time)** refers to the amount of time (expressed in % of the ownership period) covered by performance data points.

### A. Data Coverage (Area)

This section outlines GRESB methodology to calculate Data Coverage (Area) for energy per control type (Tenant vs. Landlord). The same methodology applies to water, however simpler since GRESB recognizes one water type as opposed to multiple energy types.

Data Coverage (Area) per sub-space is calculated by dividing the sum of each energy type's Floor Area Covered by the sum of their corresponding Maximum Floor Area. The same calculation is performed for both control types: Landlord Controlled & Tenant Controlled.

Energy can be reported either at Whole Building or Base Building + Tenant Space level. Each level corresponds to a control type (represented by →):

Whole Building level:

- Whole Building → Landlord Controlled (WB LC)

or

- Whole Building → Tenant Controlled (WB TC)

Base Building + Tenant Space level:

- Common Areas → Landlord Controlled (CA)
- Shared Services → Landlord Controlled (SS)
- Tenant Space - Landlord Controlled → Landlord Controlled (TS LC)
- Tenant Space - Tenant Controlled → Tenant Controlled (TS TC)

If an asset is reported at Whole Building level, the asset's Data Coverage (Area) will equal Data Coverage (Area) of the Whole Building area. If an asset is reported at Base Building + Tenant Space, each individual subspace listed above corresponding to the same control type will be aggregated to calculate the Data Coverage (Area) for that specific control type.

## 1. Landlord Controlled

Landlord Controlled areas include four areas (see above): WB LC, CA, SS and TS LC. The Data Coverage (Area) of a specific subspace is calculated by dividing the sum of each energy type's Floor Area Covered by the sum of their corresponding Maximum Floor Area.

See below an example of Whole Building - Landlord Controlled:

$$Data\ Coverage\ (Area)_{wb, lc} = \frac{\sum_j Floor\ Area\ Covered_{wb,lc,j}}{\sum_j Maximum\ Floor\ Area_{wb,lc,j}}$$

Formula 1.a. Data Coverage (Area) - Whole Building - Landlord Controlled

Where:

- 'wb' is Whole Building
- 'lc' is Landlord Controlled
- 'j' represents an energy type: Fuel, Electricity, and District Heating and Cooling

Throughout this document, the use of small letter subscripts refers to asset-level metrics while capital letters refer to property sub-type-level metrics.

Given that the Whole Building level represents the entire asset, the Whole Building Data Coverage (Area) equals the asset's Data Coverage (Area).

$$Data\ Coverage\ (Area)_{lc} = Data\ Coverage\ (Area)_{wb, lc}$$

Formula 1.b. Data Coverage (Area) at the asset level- Landlord Controlled

For assets reported at Base Building + Tenant Space, the Data Coverage (Area) for Landlord Control equals the weighted-average sum of the Data Coverage (Area) of each subspace classified as Landlord Controlled, using its corresponding Area Size as weighting factor:

$$Data\ Coverage\ (Area)_{lc} = \frac{\sum_{lc} \left( \frac{\sum_j Floor\ Area\ Covered_{lc,j}}{\sum_j Maximum\ Floor\ Area_{lc,j}} \times Area\ Size_{lc} \right)}{\sum_{lc} Area\ Size_{lc}}$$

Formula 2. Data Coverage (Area) - Base Building + Tenant Spaces Landlord Controlled

Where:

- 'lc' is Landlord Controlled
- 'j' represents an energy type: Fuel, Electricity, and District Heating and Cooling

Throughout this document, the use of small letter subscripts refers to asset-level metrics while capital letters refer to property sub-type-level metrics.

In order to aggregate the Landlord Controlled Data Coverage (Area) from asset level to property sub-type level, GRESB performs a weighted average using the Area Size of the corresponding subspace as a weighting factor.

For assets reported at Base Building + Tenant Space level, the following two assumptions are made:

- Tenant Spaces - Landlord Controlled and Tenant Spaces - Tenant Controlled don't overlap.
- The Shared Services floor area overlaps with all other subspaces.

Therefore, it is possible to calculate the Landlord Controlled (LC) weight:

$$LC\ Weight = \frac{\max(CA + TS\ LC, SS)}{\max(CA + TS\ LC, SS) + TS\ TC} \times Asset\ Size$$

Formula 3. Landlord Controlled weight - Base Building and Tenant Spaces

Finally, GRESB calculates the Data Coverage (Area) at property sub-type level for a specific control type (Landlord Controlled) as a weighted average of asset-level Data Coverage (Area) of the same control type (Landlord Controlled), using the weights above as weighting factors.

$$Data\ coverage\ (Area)_{P, LC} = \frac{\sum_{i=1}^n (Data\ Coverage\ (Area)_{lc,i} \times LC\ Weight_i)}{\sum_{i=1}^n LC\ Weight_i}$$

Formula 4. Data Coverage (Area) at property sub-type level - Landlord Controlled

Where:

- 'Data Coverage (Area)<sub>lc,i</sub>' is the Data Coverage (Area) corresponding to the Landlord Controlled areas of the asset;
- 'LC Weight<sub>i</sub>' is the Landlord Controlled weight of asset;
- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type
- 'lc' is Landlord Controlled

\* Note that for assets reporting at Whole Building level, the LC Weight is equal to Asset Size

## 2. Tenant Controlled

Tenant Controlled areas include two areas: WB TC, and TS TC. The Data Coverage (Area) of a specific subspace is calculated by dividing the sum of each energy type's Floor Area Covered by the sum of their corresponding Maximum Floor Area.

See below an example of Whole Building - Tenant Controlled:

$$Data\ Coverage\ (Area)_{wb, tc} = \frac{\sum_j Floor\ Area\ Covered_{wb,tc,j}}{\sum_j Maximum\ Floor\ Area_{wb,tc,j}}$$

Formula 5.a. Data Coverage (Area) - Whole Building - Tenant Controlled

Where:

- 'wb' is Whole Building
- 'tc' is Tenant Controlled
- 'j' represents an energy type: Fuel, Electricity, and District Heating and Cooling

Given that the Whole Building level represents the entire asset, the Whole Building Data Coverage (Area) equals the asset's Data Coverage (Area).

$$Data\ Coverage\ (Area)_{tc} = Data\ Coverage\ (Area)_{wb, tc}$$

Formula 5.b. Data Coverage (Area) - Tenant Controlled

Throughout this document, the use of small letter subscripts refers to asset-level metrics while capital letters refer to property sub-type-level metrics.

For assets reported at Base Building + Tenant Space, the Data Coverage (Area) for Tenant Control equals the Data Coverage (Area) of the subspace TS TC. Thus, the same calculation methodology of [formula 5.a](#) applies to the Tenant Controlled area of an asset reported at Base Building + Tenant Space.

$$Data\ Coverage\ (Area)_{tc} = \frac{\sum_j Floor\ Area\ Covered_{tc,j}}{\sum_j Maximum\ Floor\ Area_{tc,j}}$$

Formula 5.c. Data Coverage (Area) - Base Building + Tenant Spaces Tenant Controlled

Where:

- 'tc' is Tenant Controlled
- 'j' represents an energy type: Fuel, Electricity, and District Heating and Cooling

In order to aggregate the Tenant Controlled Data Coverage (Area) from asset level to property sub-type level, GRESB performs a weighted average using the Area Size of the corresponding subspace as a weighting factor.

For assets reported at Base Building + Tenant Space level, the following two assumptions are made:

- Tenant Spaces - Landlord Controlled and Tenant Spaces - Tenant Controlled don't overlap.
- The Shared Services floor area overlaps with all other subspaces.

Therefore, it is possible to calculate the Tenant Controlled (TC) weight:

$$TC\ Weight = \frac{TS\ TC}{\max(CA + TS\ LC, SS) + TS\ TC} \times Asset\ Size$$

Formula 6.a. Tenant controlled weight - Base Building and Tenant Spaces

Alternatively:

$$TC\ Weight = Asset\ Size - LC\ Weight$$

Formula 6.b. Tenant controlled weight - Base Building and Tenant Spaces

Finally, GRESB calculates the Data Coverage (Area) at property sub-type level for a specific control type (Tenant Controlled) as a weighted average of asset-level Data Coverage (Area) of the same control type (Tenant Controlled), using the weights above as weighting factors.

$$Data\ Coverage\ (Area)_{P, TC} = \frac{\sum_{i=1}^n (Data\ Coverage\ (Area)_{tc,i} \times TC\ Weight_i)}{\sum_{i=1}^n TC\ Weight_i}$$

Formula 7. Data Coverage (Area) at property sub-type level - Tenant Controlled

\* Note that for assets reporting at the Whole Building level, the LC Weight is equal to the Asset Size.

Where:

- 'Data Coverage (area)<sub>tc,i</sub>' is the Data Coverage (Area) - Tenant Controlled of the asset;
- 'TC Weight<sub>i</sub>' is the Tenant Controlled weight of asset;
- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type
- 'tc' is Tenant Controlled

## B. Data Coverage (Time) | Data Availability

This section outlines GRESB methodology to calculate Data Coverage (Time) for Energy, GHG, Water, and Waste.

Data Coverage (Time) of an asset is calculated based on the following:

- Ownership Period: It defines the period of time for which an asset is owned by the reporting entity. GRESB expects participants to report performance data relating to the full Ownership Period (and for which the Status is Standing Investment - see below).

- Status: GRESB does not require participants to report performance data for the period during which an asset is classified as New Construction and/or Major Renovation. Consequently, GRESB only requires participants to report performance data for the period during which an asset is classified as Standing Investment.

Data Coverage (Time) of an asset is calculated as follow:

$$\text{Data Coverage (Time)} = \frac{\text{Data Availability (To)} - \text{Data Availability (From)}}{\text{Ownership Period}_{SI}}$$

Formula 8. Data Coverage (Time) at the asset level

Where:

- 'Data Availability (To)' is the Data Availability End Date of an asset
- 'Data Availability (From)' is the Data Availability Starting Date of an asset
- 'Ownership Period<sub>SI</sub>' is the Ownership Period for which the asset was a Standing Investment

Note if in case a participant manages to collect performance data relating to the period prior acquisition, it is allowed to report a Data Availability greater than Ownership Period<sub>SI</sub>. In this case, Ownership Period<sub>SI</sub> will be the maximum between Data Availability (To)-Data Availability (From) and Ownership Period<sub>SI</sub>.

GRESB calculates the Data Coverage (Time) at property sub-type level as a weighted average of asset-level Data Coverage (Time), using Ownership Period<sub>SI</sub> as weighting factors.

$$\text{Data coverage (Time)}_P = \frac{\sum_{i=1}^n (\text{Data Coverage (Time)}_i \times \text{Ownership Period}_{SI,i})}{\sum_{i=1}^n \text{Ownership Period}_{SI,i}}$$

Formula 9. Data Coverage (Time) at property sub-type level

Where:

- 'Data Coverage (Time)<sub>i</sub>' is the Data Coverage (time) of the asset<sub>i</sub>
- 'Ownership Period<sub>SI</sub>' is the Ownership Period for which the asset was a Standing Investment
- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type

Note that Data Availability can be greater than Ownership Period<sub>SI</sub> in case the participant has collected performance data prior to the acquisition date. In this case, Ownership Period<sub>SI</sub> will be the maximum between Data Availability (To)-Data Availability (From) and Ownership Period<sub>SI</sub>.

### C. Data Coverage (Area/Time)

This section outlines GRESB methodology to aggregate the two dimensions of Data Coverage: Area and Time. This metric is calculated per control type (Landlord Controlled and Tenant Controlled) in a consistent manner.

Firstly, GRESB calculates the Data Coverage (Area/Time) at the asset level as the product of Data Coverage (Area) and Data Coverage (Time).

*Landlord Controlled:*

$$\text{Data Coverage (Area/Time)}_{lc} = \text{Data Coverage (Area)}_{lc} \times \text{Data coverage (Time)}$$

Formula 10.a . Data Coverage (Area/Time) - Landlord Controlled at the asset level

Where:

- 'Data Coverage (Area)  $_{lc}$ ' is the Data coverage (Area) at the asset level
- 'Data Coverage (Time)' is the Data Coverage (Time) at the asset level
- 'lc' is Landlord Controlled

*Tenant Controlled:*

$$\text{Data Coverage (Area/Time)}_{tc} = \text{Data Coverage (Area)}_{tc} \times \text{Data coverage (Time)}$$

Formula 10.b . Data Coverage (Area/Time) - Tenant Controlled at the asset level

Where:

- 'Data Coverage (Area)  $_{tc}$ ' is the Data coverage (Area) at the asset level
- 'Data Coverage (Time)' is the Data Coverage (Time) at the asset level
- 'tc' is Tenant Controlled

GRESB calculates the Data Coverage (Area/Time) at property sub-type level for a specific control type as a weighted average of asset-level Data Coverage (Area/Time), using *TC Weight x Ownership Period $_{si}$*  or *LC Weight x Ownership Period $_{si}$*  as weighting factors.

This weighting factor takes both the control specific weight (*LC Weight and TC Weight*) and period of ownership (*Ownership Period $_{si}$* ) into consideration in the aggregation.

*Landlord Controlled:*

$$\text{Data Coverage (Area/Time)}_{P, LC} = \frac{\sum_{i=1}^n (\text{Data Coverage (Area/Time)}_{lc,i} \times LC Weight_i \times Ownership Period_{si,i})}{\sum_{i=1}^n (LC Weight_i \times Ownership Period_{si,i})}$$

Formula 11.a. Data Coverage (Area/Time) - Landlord Controlled at property sub-type level



Where:

- 'Data Coverage (Area/Time)<sub>lc, i</sub>' is the Data Coverage (Area/Time) - Landlord Controlled of the asset<sub>i</sub>
- 'LC Weight<sub>i</sub>' is the Landlord Controlled weight of asset<sub>i</sub>
- 'Ownership Period<sub>si</sub>' is the Ownership Period for which the asset was a Standing Investment
- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type

Tenant Controlled:

$$\text{Data Coverage (Area/Time)}_{P, TC} = \frac{\sum_{i=1}^n (\text{Data Coverage (Area/Time)}_{tc,i} \times TC \text{ Weight}_i \times \text{Ownership Period}_{si,i})}{\sum_{i=1}^n (TC \text{ Weight}_i \times \text{Ownership Period}_{si,i})}$$

Formula 11.b. Data Coverage (Area/Time) - Tenant Controlled at property sub-type level

Where:

- 'Data Coverage (Area/Time)<sub>a, tc, i</sub>' is the Data Coverage (Area/Time) - Tenant Controlled of the asset<sub>i</sub>
- 'TC Weight<sub>i</sub>' is the Tenant Controlled weight of asset<sub>i</sub>
- 'Ownership Period<sub>si</sub>' is the Ownership Period for which the asset was a Standing Investment
- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type

Note that Data Availability can be greater than Ownership Period<sub>si</sub> in case the participant has collected performance data prior to the acquisition date. In this case, Ownership Period<sub>si</sub> will be the maximum between Data Availability (To)-Data Availability (From) and Ownership Period<sub>si</sub>.

## II. Like-for-Like

This section outlines GRESB methodology to aggregate the Like-for-Like Change and the Like-for-Like Data Availability from asset level to property sub-type level.

Like-for-Like (LFL) only includes comparable data points from two consecutive reporting periods. Only assets that meet all of the following criteria, for both current and previous reporting years, are eligible for inclusion in the LFL calculations:

1. Data Availability covers the full year (> 355 days);
2. Data Coverage is positive;
3. Data Coverage is the same (within 1% error threshold);
4. The asset is classified as Standing Investment.

*Note that in order to avoid infinite values, LFL also requires the existence of a positive performance value in the previous year.*

### A. LFL Change

The LFL Change calculates the percentage change in consumption/emission from last year (LY) to current year (CY). This metric is calculated per control type (Landlord Controlled and Tenant Controlled) in a consistent manner.

GRESB calculates the LFL Change at property sub-type level for a specific control type as a sum of asset-level LFL Change corresponding to that control type, using *LY consumption* as weighting factors.

*Energy - Landlord Controlled:*

$$LFL\ Change_{P, LC} = \frac{\sum_{i=1}^n (CY\ consumption_{lc,j} - LY\ consumption_{lc,j})_i}{\sum_{i=1}^n (LY\ consumption_{lc,j})_i}$$

Formula 12.a. LFL Change at property sub-type level - Landlord Controlled

Where:

- 'lc' is Landlord Controlled
- 'j' represents an energy type: Fuel, Electricity, and District Heating and Cooling
- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type

Energy - Tenant Controlled:

$$LFL\ Change_{P, TC} = \frac{\sum_{i=1}^n (CY\ consumption_{tc,j} - LY\ consumption_{tc,j})_i}{\sum_{i=1}^n (LY\ consumption_{tc,j})_i}$$

Formula 12.b. LFL Change at property sub-type level - Tenant Controlled

Where:

- 'tc' is Tenant Controlled
- 'j' represents an energy type: Fuel, Electricity, and District Heating and Cooling
- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type

\*Note that the Outdoor / Exterior Areas / Parking consumption is also included in the scope of the LFL Change if LY consumption is positive and CY consumption is greater than or equal to 0, and are also differentiated by control type.

The same methodology applies to GHG, with the exception that the LFL Change metric is calculated per scopes (Scopes 1 / 2 and Scope 3) instead of per control types.

The same methodology applies to Water, but simpler as GRESB recognises only one Water type.

Here are some examples:

Example 1:

- Asset A has reported electricity consumption in both years, and CY consumption is 0.

Reporting year	Common Areas								
	Fuels			District Heating & Cooling			Electricity		
	Consumption (kWh)	Floor Area Covered (m2/sq. ft.)	Maximum Floor Area (m2/sq. ft.)	Consumption (kWh)	Floor Area Covered (m2/sq. ft.)	Maximum Floor Area (m2/sq. ft.)	Consumption (kWh)	Floor Area Covered (m2/sq. ft.)	Maximum Floor Area (m2/sq. ft.)
2019							500	1,000	1,000
2020							0	1,000	1,000

Figure 1. LFL Change - Example 1

We assume that the asset is classified as Standing Investment and has data availability higher than 355 days. Given that LY consumption is positive, data coverages are positive and stable in both years, the Electricity consumption of Common Areas is included in the LFL Change scope.

Example 2:

- Same scenario, but LY electricity consumption is 0 instead. However, Asset B has reported positive LY fuels consumption.

Reporting year	Common Areas								
	Fuels			District Heating & Cooling			Electricity		
	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)
2019	300	1,000	1,000				0	1,000	1,000
2020	0	1,000	1,000				500	1,000	1,000

Figure 2. LFL Change - Example 2

Given that the LY consumption in the Common Areas is positive, both the LY and CY consumption are included in the LFL Change calculation.

Example 3:

- Asset C has reported electricity consumption equal to 0 for the LY but CY consumption is positive.

Reporting year	Common Areas								
	Fuels			District Heating & Cooling			Electricity		
	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)
2019							0	1,000	1,000
2020							500	1,000	1,000

Figure 3. LFL Change - Example 3

The consumption for both years will not be included in the LFL Change, as LY consumption in the Common Areas is equal to 0.

## B. LFL Data Availability

The LFL Data Availability is calculated similarly to the Data Coverage (Area) outlined in the Data Coverage section of this document. This metric is calculated per control type (Landlord Controlled and Tenant Controlled) in a consistent manner.

In addition to the criteria specified above, calculating LFL Data Availability also requires positive LY consumption/emission within a subspace of an asset.

*Energy - Landlord Controlled:*

$$LFL\ Data\ Availability_{lc} = \frac{\sum_{lc} \left( \frac{\sum_j Floor\ Area\ Covered_{lc,j}}{\sum_j Maximum\ Floor\ Area_{lc,j}} \times Area\ Size_{lc} \right)}{\sum_{lc} Area\ Size_{lc}}$$

Formula 13.a. LFL Data Availability at asset level - Landlord Controlled

Where:

- 'lc' is Landlord Controlled
- 'j' represents an energy type: Fuel, Electricity, and District Heating and Cooling
- 'i' is a Landlord Controlled subspace in a specific property sub-type
- 'n' is the total number of Landlord Controlled subspaces in a specific property sub-type

$$LFL\ Data\ Availability_{P, LC} = \frac{\sum_{i=1}^n (LFL\ Data\ Availability_{lc,i} \times LC\ Weight_i)}{\sum_{i=1}^n LC\ Weight_i}$$

Formula 14.a. LFL Data Availability at property sub-type level - Landlord Controlled

Where:

- 'LFL Data Availability<sub>lc,i</sub>' is the LFL Data Availability - Landlord Controlled of the asset<sub>i</sub>
- 'LC Weight<sub>i</sub>' is the Landlord Controlled weight of asset<sub>i</sub>
- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type

*Energy - Tenant Controlled:*

$$LFL\ Data\ Availability_{tc} = \frac{\sum_j Floor\ Area\ Covered_{tc,j}}{\sum_j Maximum\ Floor\ Area_{tc,j}}$$

Formula 13.b. LFL Data Availability at asset level - Tenant Controlled

Where:

- 'j' represents an energy type: Fuel, Electricity, and District Heating and Cooling
- 'i' is a Tenant Controlled subspace in a specific property sub-type
- 'n' is the total number of Tenant Controlled subspaces in a specific property sub-type

$$LFL\ Data\ Availability_{P, TC} = \frac{\sum_{i=1}^n (LFL\ Data\ Availability_{tc,i} \times TC\ Weight_i)}{\sum_{i=1}^n TC\ Weight_i}$$

Formula 14.b. LFL Data Availability at property sub-type level - Tenant Controlled

Where:

- 'LFL Data Availability<sub>tc,i</sub>' is the LFL Data Availability - Tenant Controlled of the asset<sub>i</sub>
- 'TC Weight<sub>i</sub>' is the Tenant Controlled weight of asset<sub>i</sub>
- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type

Note that values for Floor Area Covered and Maximum Floor Area should only be included in the formulas above if the subspace is eligible for the LFL Data Availability.

### III. Intensities

This section outlines GRESB methodology to calculate the average Energy/GHG/Water Intensity from the asset level to the property sub-type level.

For all assets with 100% Data Coverage (Area/Time), GRESB calculates Intensities at property sub-type level as a sum of the asset's total consumption divided by the sum of the Asset Sizes.

Assets with less than 100% Data Coverage (Area/Time) are excluded from the calculations.

#### A. Energy intensity

$$Intensity_{P, Energy} = \frac{\sum_{i=1}^n Total\ Energy\ Consumption_i}{\sum_{i=1}^n Asset\ size\ (GFA)_i}$$

Formula 15. Average Energy Intensity per property sub-type

Where:

- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type

#### B. GHG intensity

$$Intensity_{P, GHG} = \frac{\sum_{i=1}^n Total\ GHG\ Emissions_i}{\sum_{i=1}^n Asset\ Size\ (GFA)_i}$$

Formula 16. Average GHG Intensity per property sub-type

Where:

- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type

#### C. Water intensity

$$Intensity_{P, Water} = \frac{\sum_{i=1}^n Total\ Water\ Consumption_i}{\sum_{i=1}^n Asset\ Size\ (GFA)_i}$$

Formula 17. Average Water Intensity per property sub-type

Where:

- 'i' is an asset in a specific property sub-type
- 'n' is the total number of assets in a specific property sub-type