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Appendix: BuildingMinds Platform Service Description

A. General BuildingMinds Platform setup

The BuildingMinds Platform consists of three different solutions: The Platform core solution is the foundation for the other two other solutions, namely the ESG management solution and the Corporate real estate management solution. All three solutions consist of different modules, each with different features, which are described in more detail in section Detailed description of the BuildingMinds Platform solutions.

All three solutions require, among others, Customer's cooperation, and dependency fulfillment as described in section Cooperation of Customer and dependencies. The summary table below sets out which module and feature is included, or, as the case may, be will be included when it is generally available, in which package of the BuildingMinds Platform Services that Customer subscribes to in its relevant subscription agreement, e.g., an individual agreement for BuildingMinds Platform Services under a master services agreement, an order for BuildingMinds Platform Services, or an individually negotiated contract for BuildingMinds Platform Services (each, a "**Subscription Agreement**"). Features that are marked as "Yes" in the summary table below are in scope of the relevant package, features marked as "No" are out of scope, and optional features are marked as "(Yes)" in the summary table below and can be added to a package, as selected in the relevant Subscription Agreement.

Platform core

BuildingMinds Platform Module	BuildingMinds Platform Feature	Included in Package "ESG Explorer"	Included in Package "Carbon Navigator"	Included in Package "Net Zero Hero"
General services	Global search	Yes		
	Single sign-on (SSO)	No	Yes	Yes
	User settings	Yes		
	Support form			
	Support portal			
Digital building and portfolio twin	Digital twin overview	Yes		
	Custom structure			
	Map			
	Area measurement management			
	Data changelog			

	Visualization	
	Equipment list	
	Activity list	
	Document list	
Reporting and analytics foundation	KPI overview	Yes
	KPI filter	
	Data export	
Authorization	Access control for sites, buildings, and dashboards	Yes
	Access control to nodes of the custom structure	
	Write protection of externally supplied attributes	
	API keys	
Connectivity and integrations	Integration templates	Yes
	Connectivity of IoT-based energy consumption meters	
	API provisioning	
Common Data Model for Real Estate and Common Data Model for Real Estate onboarding	Data onboarding enablement	Yes
	Cluster extensions enablement	

ESG management

BuildingMinds Platform Module	BuildingMinds Platform Feature	Included in Package "ESG Explorer"	Included in Package "Carbon Navigator"	Included in Package "Net Zero Hero"
Portfolio overview	Sites/buildings by type	Yes		
	Regions by gross area			
	Sites/buildings by size and construction year			
	Portfolio detailed overview			
ESG data coverage and enrichment	Data coverage overview	No	Yes	Yes
	Data source indicator for resource consumption values	No	Yes	Yes
	Unit conversion	No	Yes	Yes
	Data normalization	No	Yes	Yes
	Plausibility checks	No	Yes	Yes
	Data estimation	No	Yes	Yes
Resource consumption and operational emission insights	Resource consumption data management	Yes		
	Resource consumption overview			
	Net energy demand by energy type			
	Development of net energy demand			
	Energy procurement			
	Water consumption, waste disposal, and fugitive gas emissions (other resources)			
	Data coverage			
	Resource consumption– detailed breakdown			
	Utility consumption monitoring			
	Total carbon emissions			
	Carbon emissions to energy ratio			
	Share of the emission scope			

	Development of operational carbon emissions			
	Carbon emissions–detailed breakdown			
	Location-based/market-based			
Tenant insights	Utility consumption insights	No	No	(Yes)
	CO_2 emission insights			
	Tenant user management			
Risk and cost simulation	Carbon emissions vs. CRREM target	No	Yes	Yes
	Net energy demand vs. CRREM target	No	Yes	Yes
	Share of stranded assets	No	Yes	Yes
	Long-term simulation	No	Yes	Yes
	Stranding risk–data coverage	No	Yes	Yes
	Stranding risk–detailed breakdown	No	Yes	Yes
	Carbon pricing simulation	No	Yes	Yes
	Carbon price–data coverage	No	Yes	Yes
	Carbon price–detailed breakdown	No	Yes	Yes
	Custom portfolio carbon price trajectory	No	Yes	Yes
	Physical risk portfolio analysis	No	(Yes)	(Yes)
ESG reporting	Certificates and energy ratings	Yes		
	Energy rating dashboard			
	Certificates dashboard			
	GRESB reporting	No	(Yes)	(Yes)
	Sustainability passport	No	Yes	Yes
	SFDR/PAI reporting	No	(Yes)	(Yes)
Retrofit planning and impact simulation	Portfolio decarbonization KPIs	No	No	Yes
	Simulated operational CO_2 emissions vs. CapEx	No	No	Yes
	Retrofits' efficiency and savings over time	No	No	Yes
	Retrofit management	No	No	Yes

	Advanced retrofit planning	No	No	Yes
	Embodied carbon emissions from retrofits	No	No	Yes
	Add roadmap scenarios	No	No	Yes
	Compare roadmap scenarios	No	No	Yes

Corporate real estate management (CREM)

BuildingMinds Platform Module	BuildingMinds Platform Feature	Included in Package "ESG Explorer"	Included in Package "Carbon Navigator"	Included in Package "Net Zero Hero"
Portfolio performance	Portfolio summary	Yes		
	Lease management	(Yes)	(Yes)	Yes
	Cost monitoring	(Yes)		
Space and workspace management	Define work area types	(Yes)		
	Manage work areas			
	Manage workspaces			
	Manage neighborhoods			
	Space utilization			

B. Detailed description of the BuildingMinds Platform solutions

Below is a detailed description of all BuildingMinds Platform solutions and their respective modules and features, together with their corresponding availability status.

Feature status "Available": Features are within the current scope of the respective module and – if part of the selected package – available to all subscribers of the respective module.

Feature status "Planned": Features in development that will become part of the module scope. Once generally released, they will be available to subscribers for the respective module and package without additional fees.

Platform core

The Platform core solution provides the foundation for the two other solutions BuildingMinds offers, ESG management and Corporate real estate management. The Digital building and portfolio twin module integrates data and information around the life cycle of real estate and buildings into a single ecosystem and serves as a convenient source of information for various stakeholders. It also allows a multi-level grouping of sites and buildings into portfolios and sub-portfolios, enabling to view them on the map or filter the data for dashboards. Customers can continuously access and update data and information manually or through a third-party provider connector. Customer's BuildingMinds Platform administrators can manage user access to sites and buildings within the Authorization module.

Data onboarded on the BuildingMinds Platform as part of separate Professional Services is integrated and harmonized according to the Common Data Model for Real Estate. Together with partners, BuildingMinds is establishing the Common Data Model for Real Estate in the International Building Performance Data Initiative (IBPDI). As a common data language oriented towards the needs of the real estate industry, it enables data standardization and its use in different real estate-related contexts. For more information, see https://ibpdi.org.

General services

This module provides basic platform functionalities for easy navigation and individual setup.

Feature	Description	Status
Global search	Search data and information on real estate objects, equipment, documents, and activities.	Available
Single sign-on (SSO)	The BuildingMinds Platform is single sign-on-ready and provides the option to configure (as part of separate Professional Services) a single sign-on authentication process as alternative to the default 2-factor authentication method.	Available
User settings	Configure the BuildingMinds Platform, e.g., select the language.	Available
Support form	Contact the Customer Support Team to report an issue or submit a feature request.	Available

Support portal	Access the product knowledge base and view or add information to your submitted cases in the support portal's case management.	Available

Digital building and portfolio twin

The Digital building and portfolio twin module is the centerpiece of the BuildingMinds Platform and facilitates comprehensive real estate portfolio and building management. Data and information about real estate objects can be centrally stored or made available via the BuildingMinds Platform. Data updated from different systems and sources can be brought together in the BuildingMinds Platform, establishing the basis for a single source of truth.

Customers can view the location of real-estate objects on the map, add boundaries of land and external spaces to the map, and navigate from the overview level to the building level of the digital building twin.

Furthermore, customers can group buildings and lands into portfolios and structure them following the organizational structure. Real estate objects can be clustered to reflect the customer's organizational structure. Information on entities can be made centrally available via the BuildingMinds Platform for the stakeholders.

Feature	Description	Status
Digital twin overview	View, update, and delete the information and data of the real-estate objects.	Available
Custom structure	Group sites, buildings, or lands in a multi-level structure according to your organization's structure. Filter your real-estate objects in the map and the data for dashboards by selecting the custom structure elements.	Available
Map	Get an overview of your buildings' and sites' locations.	Available
Area measurement management	Add new area measurements to your buildings and manage them in the BuildingMinds Platform to calculate Key Performance Indicators (KPIs) based on area measurements.	Available
Data changelog	Changes to the master data are logged and can be displayed in a change history. Get information about which users have changed when which value to which new value.	Planned
Visualization	View buildings as a 3D BIM model or 2D floor plans if a BIM model or floor plans are provided and added to the BuildingMinds Platform. Creation and setup of BIM models through BuildingMinds Professional Services can be arranged separately, for an additional fee.	Available
Equipment list	The equipment list contains the complete equipment for all sites on the BuildingMinds Platform. Each component of the list is related to a real-estate object. View, update and delete equipment. Categorize equipment according to DIN276 and add additional characteristics of the selected category.	Available

Activity list	View all activities of the BuildingMinds Platform and to which real-estate object the activities are linked. Add, edit, or delete activities from that list. Track the status of activities and notify assigned users of activities via email from the BuildingMinds Platform.	Available
Document list	Get an overview of documents uploaded to the BuildingMinds Platform and link them to real-estate objects. Upload, edit, or delete documents from that list.	Available

Reporting and analytics foundation

This module provides the foundation to enable data insights into portfolios. The ESG management and Corporate real estate management solutions' dashboards are based on this module.

Data available in the BuildingMinds Platform is aggregated in portfolios and displayed on different dashboards with generic KPIs or KPI suggestions based on the data. According to the authorization level given to the users, specific dashboards or reports can be accessed or restricted.

Feature	Description	Status
KPI overview	Display relevant KPIs on the map.	Available
KPI filter	Filter KPIs by dates or other categories like building type.	Available
Data export	Export the data displayed on a dashboard to an Excel file to locally save it in your file system.	Available

Authorization

This module allows the customer-assigned administrator to create user accounts on the BuildingMinds Platform and manage user access rights and privileges for relevant building and portfolio data and dashboards.

Users' access rights are defined in the Administration center and managed using role-based access control (RBAC). In the Administration center, permissions are grouped under roles (according to the customer's authorization concepts) and assigned to users.

Roles grant users permissions that control the users' access to a resource. In the BuildingMinds Platform, resources are sites, buildings, and dashboards. Privileges are “Read only”, “Add”, “Edit”, and “Delete”.

Feature	Description	Status
Access control for sites, buildings, and dashboards	Create roles and set permissions for users as a BuildingMinds Platform administrator to grant access to sites, buildings, and dashboards. Users can only view, add, edit, or delete objects and data if assigned to their respective roles with relevant permissions.	Available

Access control to nodes of the custom structure	Create roles and set permissions for users as a BuildingMinds Platform administrator to grant access to custom structure nodes that are defined in the Custom structure feature. Users can only view, add, edit, or delete objects and data if assigned to their respective roles with relevant permissions.	Available
Write protection of externally supplied attributes	Protect data fields that are synchronized with an external system from being modified by users. Protected fields are displayed as non-editable in the BuildingMinds Platform.	Planned
API keys	Create API keys (Application Programming Interface keys) to access or update the data on the BuildingMinds Platform. Link the API keys to specific BuildingMinds Platform APIs (Application Programming Interfaces).	Available

Connectivity and integrations

This module connects customer systems and IoT cloud systems or other third-party systems to the BuildingMinds Platform to integrate existing data from different systems into a single source of truth. This way, an integrated data foundation is created to be used as a basis for generating data insights and reports.

The integrations can be established by customer-assigned administrator users in the Administration center using pre-defined configuration templates for selected partners and customized templates.

Customers and partners can also build their connectors to the BuildingMinds Platform to get data from the platform or get data into the platform using the API provided by BuildingMinds.

Feature	Description	Status
Integration templates	Establish a connection with selected third-party platform providers. Use the template to get data into the BuildingMinds Platform.	Available
Connectivity of IoT-based energy consumption meters	Assign data points from energy consumption meters to buildings and rental units that are submitted to the BuildingMinds Platform through centralized system integrations from external solutions. Automate the energy data collection for the ESG management solution use cases.	Planned
API provisioning	Build your own connector to integrate your organization's systems to the BuildingMinds Platform and establish a connection using the API provided by BuildingMinds.	Available

Common Data Model for Real Estate and Common Data Model for Real Estate onboarding

This module enables separate Professional Services to harmonize, automate, and load data related to real estate and portfolios based on the Common Data Model for Real Estate, the first global data standard for real estate.

The standard defines entities across all essential real estate management areas, including operations, market, and environment to lifecycle management. Each entity of the Common Data Model for Real Estate is determined by different attributes, therefore, adding meaning to the data. Based on the Common Data Model for Real Estate, data coming to the BuildingMinds Platform from other systems and sources is standardized and interlinked to enable real estate data analytics.

The Common Data Model for Real Estate lays the foundation for the following:

- Transparency and insights across all real estate value chain processes
- Reduced time and complexity of data collection
- Advanced automation and data-driven decision-making processes across individual assets and portfolios
- Application of Machine Learning and Artificial Intelligence

BuildingMinds, together with partners, is establishing the Common Data Model for Real Estate within the framework of the International Building Performance Data Initiative (IBPDI).

For more information, see https://ibpdi.org.

Feature	Description	Status
Data onboarding enablement	Allow for Customer data onboarding. Customer data is mapped to entities of the Common Data Model for Real Estate and uploaded via an integration template, the API, or files to the BuildingMinds Platform by the BuildingMinds Data Team as part of separate Professional Services.	Available
Cluster extensions enablement	Allow for cluster extensions. Entities for significant clusters like the digital twin, space utilization, building cost, and finances can easily be added to the Common Data Model for Real Estate by the BuildingMinds Data Team as part of separate Professional Services.	Available

ESG management

The ESG management solution of the BuildingMinds Platform contains modules for data-driven insights and simulations relevant to sustainable buildings and portfolios. KPIs on resource consumption (electricity, heating, water, waste, and fugitives), operational carbon emissions, and carbon risk can be calculated and displayed in the interactive dashboards, enhancing customer measures to reduce the operational carbon footprint.

Based on the available resource consumption data and digital twin's asset characteristics, customers can assess their current energy efficiency and operational carbon footprint to identify the most critical contributors, outliers, and savings potential.

Customers have a tool to assess how sustainable their portfolios are, centrally manage carbon risks in the BuildingMinds Platform, and help mitigate them quickly.

Historical data of a particular period can be analyzed and displayed to the user, enhancing a data-driven decision-making process. Relevant data available in the BuildingMinds Platform can be aggregated in portfolios and displayed in different dashboards with generic or customer-specific KPIs, which have been defined during the onboarding or added through Professional Services, thus helping to optimize the performance of portfolios. Furthermore, customers can assess possible future development for selected KPIs with the help of historical data, improving a data-driven decision process. Viewing how KPIs may evolve helps reduce operational costs and discover optimization potential in the portfolio. The

simulated data helps customers manage potential risks for buildings and portfolios, like carbon risks, or decide on potential building acquisitions.

The BuildingMinds Platform provides useful data insights to plan possible actions to improve the performance of assets and portfolios. Customers can assign retrofit measures to individual buildings, check their potential impact on carbon emissions and costs, and determine which portfolio-level retrofit scenarios may most effectively comply with their sustainability targets.

Portfolio overview

This module provides customers with an overview of the composition of their portfolio. Customers can, for example, see the overall number of buildings and sites, their types of use, gross floor areas and construction years.

Feature	Description	Status
Sites/buildings by type	View the number of buildings per use type (e.g., office, residential).	Available
Regions by gross area	Get an overview of the gross floor area by region.	Available
Sites/buildings by size and construction year	Compare the buildings of the portfolio by construction year and gross area.	Available
Portfolio detailed overview	Get detailed information on the portfolio, sort by different parameters, or aggregate information on the different geographical levels.	Available

ESG data coverage and enrichment

This module provides an overview of the data quality, highlighting certain implausible values, contradicting data points, and data gaps. Customers can track the progress in terms of data coverage and analyze the quality. The value of individual data points can be traced back to their source to help audit and investigate implausible data points.

Implausible extreme outliers in resource consumption are highlighted and can be filtered out, so they do not distort fund or portfolio aggregations and averages.

With the Data coverage and enrichment module, Customers can select vacancy-adjusted resource demand for a like-for-like comparison between different years and assets. Alternatively, customers can choose climate-adjusted heating demand for a like-for-like comparison between different years and assets and combine them with the vacancy-adjusted resource demand.

Estimates for missing resource consumption values will be included based on industry benchmarks for the asset class and country (where available). Missing square footage values for landlord-controlled common areas will be estimated based on gross floor area and asset type. Missing values for gross floor areas, heated areas, or net rentable areas will be estimated using conversion factors for each asset type.

Feature	Description	Status
Data coverage overview	Get an overview of how many assets have reported, estimated, or missing data points for resource consumption and their	Planned

	development over the past years. Get an overview of how the data coverage compares for different data types and regions or funds.	
Data source indicator for resource consumption values	Get an overview of the number of resource consumption data points collected, estimated, or missing, and how they have evolved in recent years. Get an overview of how the data coverage compares to different data types and regions or funds. For each resource consumption value, check from which source it originates (user input, extrapolation, energy certificate, benchmark).	Planned
Unit conversion	Convert imperial units into metric units. View the fuel consumption data provided in volume in kWh based on sub-type typical conversion factors. View the produced waste provided in volume in tons based on sub-type-specific conversion factors.	Planned
Data normalization	View the vacancy-adjusted resource demand and the climate-adjusted heating demand for a like-for-like comparison between different years and assets. Split the annual heating demand into monthly consumption estimates based on heating degree days.	Planned
Plausibility checks	View extreme outliers in resource consumption that are implausible and highlighted. Filter them out so they do not distort fund or portfolio aggregations and averages. View drastic year-over-year changes in resource consumption that are implausible and highlighted for investigation.	Planned
Data estimation	Get estimations for missing resource consumption values based on industry benchmarks for each asset class and country. Estimations of common-area shares are based on gross floor area and asset class. Conversions of gross floor area, heated area, and net rentable area are based on conversion factors for each asset class.	Planned

Resource consumption and operational emission insights

The *Resource consumption* subset of this module contains consumption data from various energy sources and other resources like water and waste in a single, reliable insights dashboard and achieves instant operational advantages. Customers can view and assess the buildings' resource consumption on the dashboard, such as electricity, district heating, fuels, water, and waste production. Besides that, historical and current data can be stored and analyzed.

Customer can internally benchmark their resource consumption through a diverse range of KPIs, interactive visualizations, and tables to identify outliers and buildings with the highest need for action within a portfolio. Customers can track the performance of each building and the entire portfolio over time regarding each KPI.

Feature	Description	Status
Resource consumption data management	Add new items and change the existing data for historical and current resource consumption in the BuildingMinds Platform. Classify resource consumption data by medium, subtype, procurement or generation, space type, and accuracy.	Available

Resource consumption overview	Get an overview of the portfolio's resource consumption for a selected year, including energy, water, waste disposal, and fugitive gas emissions. Switch between absolute values and intensity values (per m^2) to increase comparability across buildings and over time.	Available
Net energy demand by energy type	Get an overview of the portfolio's energy consumption and demand for a selected year. Compare the data on energy, including the breakdown into different energy sources like electricity, renewables, natural gas, district heating, or solar energy, to the previous years and get an overview of the development over time. Identify outliers with the help of the Buildings by heating type chart. Switch between absolute values and the intensity to display intensity figures per m^2 of floor area to compare buildings.	Available
Development of net energy demand	Monitor the energy consumption by energy types and renewable energy sources generated on-site and off-site. Compare the net energy demand to the previous year with the YoY view.	Available
Energy procurement	Track which shares of individual energy types were self-procured or procured by a third party.	Available
Water consumption, waste disposal, and fugitive gas emissions (other resources)	Get an overview of the portfolio's other resource consumption for a selected year. Compare the data on water, waste, and refrigerants to the previous years and overview the development over time. Switch between absolute values and the intensity to display intensity figures per m^2 of floor area to compare buildings.	Available
Data coverage	View the share of buildings with consumption data for each resource in the selected year.	Available
Resource consumption–detailed breakdown	Get detailed information on the building level, sort by different parameters, or aggregate information on the geographical level.	Available
Utility consumption monitoring	Monitor the monthly and daily consumption of utilities, such as electricity, gas, and water, across relevant levels of the portfolio, including building and rental unit levels. See the progression over time for each utility category. Spot discrepancies within the portfolio by comparing consumption levels among different buildings. Conduct an in-depth analysis of each asset's monthly consumption to identify possible inefficiencies or wastage in energy usage, utilizing granular data collected from meters or utility providers, if available.	Planned

In the *Carbon emissions* subset of this module, the BuildingMinds Platform automatically calculates the operational carbon footprint based on resource consumption data integrated from various resources. The available dashboard allows customers to analyze their selected year emissions compared to the previous year–for the entire portfolio or down to the asset level. Customers can share insights with stakeholders to help devise strategies to reduce specific resource emissions and notify senior management about their status.

Customers can export and download data as an Excel spreadsheet and use this data for reporting to, e.g., GRI or EPRA. The exported data is consistent with the requirements of the EU Taxonomy and the Greenhouse Gas Protocol.

All figures are provided in CO_2 equivalents (CO_2e), combining CO_2 and other greenhouse gas emissions using one standard unit. Carbon emissions are calculated based on the available data on energy consumption, water consumption, waste production, and the emission of fugitive gases.

Feature	Description	Status
Total carbon emissions	Get an overview of total operational carbon emission and the emission contributors for the selected year and year-over-year change. View the development of operational carbon emissions through the entire period for which data is available and by contributors. Switch between absolute values and the intensity to display intensity figures per m^2 of floor area to compare buildings.	Available
Carbon emissions to energy ratio	Compare buildings in the portfolio based on their energy consumption and corresponding carbon emissions. View how much carbon each building emits to meet its energy demands. For example, two buildings with the same energy demand but different heating methods will have other carbon emissions. Identify the buildings with below-average performance to take action.	Available
Share of the emission scope	View the share of scope 1, 2, and 3 emissions of the assets and portfolios according to the greenhouse gas protocol corporate standard (operational control approach) based on the provided information on energy procurement (self-procured vs. procured by a third party).	Available
Development of operational carbon emissions	View the absolute carbon emissions and shares per resource type over time. Compare the changes to the previous year with the YoY view.	Available
Carbon emissions–detailed breakdown	Get detailed information on the building level, sort by different parameters, or aggregate data on a geographical level. Export the data as an Excel spreadsheet for your ESG reporting. The exported data is consistent with the requirements of the EU Taxonomy and the Greenhouse Gas Protocol.	Available
Location-based/market-based	Carbon emissions can be calculated, using location-based or market-based factors. BuildingMinds offers official CRREM location-based factors. For renewable resource consumption, a 0-emission factor is used in market-based calculations. CRREM is a research project initiated by the EU Commission to translate the overall targets of the Paris Climate Agreement into transparent emission and energy reduction pathways for the real estate sector.	Available

Tenant insights

This module enables commercial and residential tenants to track the utility consumption and CO_2 emissions of their rented assets. Insights are provided to help understand historical consumption and to monitor the current usage and emissions. The insights are supported by available consumption data collected from smart meters and submeters. This module requires a separate login and is intended for

use by the Customer’s current tenants. Customer’s BuildingMinds Platform administrators can manage the relevant tenant users separately from BuildingMinds Platform users.

Feature	Description	Status
Utility consumption insights	Monitor the utility consumption (e.g., electricity, gas) by tenants for leased buildings and rental units. View the historical and current consumption for different utility types.	Planned
CO_2 emission insights	Monitor operational CO_2 emissions by tenants for leased buildings and rental units. View the development of operational carbon emissions over time for which data is available.	Planned
Tenant user management	Manage tenant insights users separately on the BuildingMinds Platform. Separately assign user permissions for tenants.	Planned

Risk and cost simulation

In the *Stranding risk* subset of this module, the BuildingMinds Platform simulates how the carbon footprint will develop in the future and, more crucially, when specific assets will no longer meet the CRREM requirement to fulfill the 1.5 °C and the 2 °C global warming target of the Paris Climate Agreement. Stranding risk is also referred to as carbon risk or transition risk. Besides the CRREM decarbonization pathways, the module integrates CRREM energy reduction pathways. The module offers several tables and interactive diagrams to identify buildings with the highest need for action.

In this context, unheated areas such as parking garages or underground parking lots are not taken into account when calculating energy consumption and CO_2 emissions and are recorded separately.

Feature	Description	Status
Carbon emissions vs. CRREM target	Compare the buildings' carbon emissions (absolute emissions and intensity values per floor area) with the CRREM decarbonization targets defined until 2050.	Available
Net energy demand vs. CRREM target	Compare buildings' energy demand (net energy demand and intensity values per floor area) with the CRREM energy efficiency targets defined until 2050.	Available
Share of stranded assets	View the development (until 2050) of the share of buildings that do not fulfill their specific CRREM decarbonization targets (stranded assets) based on the gross internal area in m^2 or the number of buildings. Foresee when and how fast the portfolio's share of stranded assets will accumulate over time without taking any action.	Available
Long-term simulation	View the performance of all individual buildings across the portfolio against their CRREM carbon and energy targets. Track each building's performance until 2050 and identify stranded assets with the interactive chart. View each building based on its actual carbon and energy intensity or its relative performance to its specific CRREM targets in the respective year.	Available

Stranding risk–data coverage	View the share of buildings or floor area in m^2 with emission data and CRREM target.	Available
Stranding risk–detailed breakdown	Get a detailed breakdown on building level for all CRREM-related KPIs. Sort by any parameter, export the data into an Excel spreadsheet, or aggregate KPIs on site, region, country, or fund level.	Available

In the *Carbon cost simulation* subset of this module, customers can, based on a user-defined carbon price development and several options regarding the inclusion and exclusion of emissions (e.g., per emission scope), create scenarios of future carbon costs on the portfolio level or for individual buildings.

Feature	Description	Status
Carbon pricing simulation	Define a global carbon price trajectory to calculate carbon costs. Against uncertain future carbon prices, run simulations on different scenarios to reduce uncertainty. Set a carbon price trajectory for a defined time frame and apply it to each building's emissions. Choose between other pricing models, e.g., using the specified carbon price only for fuel-based emissions, scope 1, 2, or 3 emissions, or emissions exceeding the buildings' specific CRREM targets. Get an overview of the total amount of priced emissions until the end of the chosen time frame, the average costs per ton, and the net present value (NPV) of the future emissions. The net present value of future carbon costs is based on the selected discount yield and indicates the carbon risk in your portfolio and individual buildings (NPV/m^2). Regulatory price: Calculate the carbon price of emissions based on a self-defined future carbon price per ton representing regulatory costs. Shadow price: Include a company-internal carbon price trajectory (shadow price) in analyzing carbon costs. The additional shadow pricing calculation introduces a speculative market price that can effectively incorporate the cost of carbon into financial decision-making. It is a crucial component for long-term strategic risk management in corporations.	Available
Carbon price–data coverage	View the share of buildings or floor area in m^2 with emission data and CRREM target.	Available
Carbon price–detailed breakdown	Get a detailed breakdown on building level for all CRREM-related KPIs and carbon pricing. Sort by any parameter, export the data into an Excel spreadsheet, or aggregate KPIs on site, region, country, or fund level.	Available
Custom portfolio carbon price trajectory	Save your defined internal shadow price trajectory for the portfolio as a default for all users.	Planned

In the *Physical risk simulation* subset of this module, customers can take several steps to complete an environmental risk analysis for risk factors like floods, droughts, and earthquakes at a specific building site. Customers can either themselves provide the risk score for each building or BuildingMinds can

request a physical risk score for each building from an industry-leading 3rd-party data provider based on each building type and location as part of the optional Physical Risk Assessment(s) add-on to the BuildingMinds Platform Services. Once made available, these scores are integrated into the BuildingMinds Platform ESG management solution to provide a more detailed picture of the building site's risk profile.

Finally, the risk scoring is visualized at the asset, fund, or portfolio level to allow for a comprehensive ESG reporting.

Feature	Description	Status
Physical risk portfolio analysis	Analyze your physical risk factors and scorings on portfolio level on an interactive dashboard based on the provided data or the data from the optional Physical Risk Assessment(s) add-on to the BuildingMinds Platform Services.	Planned

ESG reporting

In this module, customers can benchmark their assets' ESG performance in different reporting standards and export in an automatic or semi-automatic way for selected reports and geographies.

Feature	Description	Status
Certificates and energy ratings	Add your buildings' EPCs (energy performance certificates) and green building certificates to the BuildingMinds Platform on the building level and have them available for your ESG reporting.	Available
Energy rating dashboard	Obtain an overview of energy performance certificates at the portfolio or fund level, showing the number and share of buildings and gross floor area. View asset distribution by energy efficiency class for SFDR and EU Taxonomy reporting. Identify expiring certificates for recertification and access building-level certificate information in the detailed breakdown.	Available
Certificates dashboard	Obtain a summary of existing certificates at the portfolio or fund level, showing building count, share, and gross floor area. View distribution by certificate types, outcomes, and labels. Identify expiring certificates in preparation for recertification and access available building-level certificate information in the detailed breakdown.	Available
GRESB reporting	Preview your asset data available on the BuildingMinds Platform mapped to the GRESB data structure. Validate your GRESB data automatically against GRESB syntax and check for plausibility before submitting to GRESB to avoid submitting data that does not comply with the GRESB syntax. Submit the available asset data for each fund via API from the BuildingMinds Platform to your GRESB portal account.	Available
Sustainability passport	Get a one-page report on the sustainability performance of an individual building, including building characteristics, energy	Available

	consumption, carbon emissions, carbon risks, and a comparison to the fund average.	
SFDR/PAI reporting	Create your PAI (principal adverse impact) reporting with mandatory and optional real estate KPIs per fund. KPIs are calculated per quarter, taking into account the fiscal year. The last four quarterly calculations are used for the annual reporting.	Planned

Retrofit planning and impact simulation

This module enables customers to plan retrofit measures and assess their impact on individual buildings' carbon performance in alignment with decarbonization targets. Customers can run simulations to identify the retrofit scenario with the best balance of carbon emissions, future carbon savings, and capital expenditures.

To identify more cost-efficient measures, customers can analyze which retrofit measures reduce the portfolio's simulated carbon footprint and compare the investment cost to the saved emissions. Furthermore, the retrofit impacts are automatically reflected as an alternative scenario in stranding risk simulations and carbon cost dashboards.

Customers can analyze alternative scenarios for their portfolio's retrofit roadmap to compare costs, impact, or feasibility. Different stakeholders can share their perspectives by creating a scenario and starting the dialogue to refine or compromise on a decision.

Feature	Description	Status
Portfolio decarbonization KPIs	Get an overview of the decarbonization and energy reduction efforts and evaluate their impact on your carbon emission and energy targets. Simulate your retrofit saving by visualizing total savings in net energy demand and carbon emissions over a specific time.	Available
Simulated operational CO_2 emissions vs. CapEx	Simulate development of your portfolio’s CO_2 emission or net energy demand based on the planned retrofits and the retrofits' investments.	Available
Retrofits' efficiency and savings over time	Identify which retrofits have the most significant impact on carbon reductions over time and the most cost-efficient ones.	Available
Retrofit management	Get an overview of the planned retrofits in your portfolio. Add, edit and delete retrofits.	Available
Advanced retrofit planning	Plan year-wide measures as well as savings based on absolute targets rather than percentage savings.	Planned
Embodied carbon emissions from retrofits	Enter the estimated embodied carbon emissions for retrofits to be reflected in the simulation of future carbon reduction.	Planned
Add roadmap scenarios	Create multiple alternative scenarios for the retrofit roadmap and assign individual retrofits to one or multiple scenarios.	Planned

Compare roadmap scenarios	Analyze and compare the impact of the different scenarios to identify the more viable option. Collaborate with other users by sharing, contributing, and reviewing different scenarios.	Planned

Corporate real estate management (CREM)

The CREM solution contains modules that help optimize the performance of real estate portfolios in different dimensions. Data-driven insights for cost and lease monitoring, space optimization, and the buildings' user experience provide a 360° view of the portfolio. IoT sensor data enrich the overall data quality and enable different use cases.

CREM is a comprehensive, data-driven solution that allows customers to realize different company-specific use cases throughout their portfolios. Customers can view and get insights from reliable reports adapted to organizational structures, safely share them, and export data across several lines of business.

Portfolio performance

This module helps customers increase the value of their portfolio by integrating multiple data streams and generating insights from the portfolio level down to the single-building level. Dashboards provide customers with information required to develop strategies for optimizing their lease contracts.

In addition, customers can get an overview of lease metrics and select individual KPIs to compare. For detailed evaluations, upcoming lease events can be displayed and activities planned accordingly.

Feature	Description	Status
Portfolio summary	Get an overview of your portfolio's structure with the number of buildings per region and usage type (e.g., office, residential). Get an overview as well as KPIs on critical areas, such as energy demand, cost, and leases across your assets, and identify possible outliers.	Available
Lease management	**Overview** Get an overview of lease KPIs across your portfolio down to building level, such as: • Yearly costs • Yearly cost per m^2 • Yearly cost per individual workspace • Yearly cost per employee • WALT • Total rentable area • Number of workspaces • Number of employees	Available

	Select and compare lease key indicators against each other to understand how the costs are distributed across the portfolio. You can select between sites, regions, or buildings. **Lease event dashboard** Identify upcoming lease events that are likely to require immediate or near-term attention. View leases that are about to end with the attached gross area and yearly cost. **Lease contracts dashboard** Get a detailed overview of all leasing contracts. Filter the data according to a building type and get information on building name, ancillary costs, region costs per m^2, and workspaces available. **Internal benchmarking** Compare parts of your portfolio as part of an internal benchmarking according to lease KPIs to identify outliers. Refine the comparison using different filters such as country, business unit, branch, etc., and building usage types down to building level.	
Cost monitoring	View the total building operation costs, per headcount, m^2, and the year-over-year difference. Compare the total costs with the headcount or the m^2 for sites and by site type. Get an overview of costs per category, per headcount, and cost category, or per m^2 and cost category. You get detailed cost information for a selected site in the site overview.	Available

Space and workspace management

This module contains features to manage workspaces within a building more effectively. Customers can set the type, composition, and location of work areas and workspaces, create neighborhoods, and monitor actual space utilization with real-time sensors or booking data if data is integrated into the BuildingMinds Platform. With the workspace management module, customers can categorize work areas in custom groups and assign workspaces to those areas. Workspaces can be clustered into neighborhoods based on user groups like departments or projects. If a 3D BIM model is uploaded to the BuildingMinds Platform, it is possible to visualize the workspace management features within the model.

Customers can connect the workspace management to an external booking solution. Booking data can be integrated into this Space and workspace management module and displayed in a dedicated dashboard. As the BuildingMinds Platform is the data foundation for the booking solution, any changes in the layout or information on workspaces can be handled in a central place. If the building is equipped with space monitoring, sensor data can be integrated into the space utilization report to create a secure, productive, and compliant workplace for employees. In addition, customers can monitor the space utilization and optimize them to meet the demands for more flexibility, efficiency, and quality.

Customers can analyze occupancy peaks and lows, visualize the utilization of the workspaces in real time, and develop agile strategies to improve cost efficiency, space utilization, and working conditions.

Feature	Description	Status
Define work area types	Define work area types for your portfolio in the workspace management settings. A work area type defines the kind of work for which an area in the office building is used.	Available
Manage work areas	Document and manage the different work areas of your buildings that belong to a work area type.	Available
Manage workspaces	Document and manage the workspaces that are part of a work area of your buildings. A workspace is a single bookable entity.	Available
Manage neighborhoods	Combine several workspaces in neighborhoods to reflect neighboring workspaces, e.g., for project work or teams.	Available
Space utilization	View the total size of buildings in m^2 and the number of available desks and meeting rooms. Get an overview of desks or meeting rooms' occupancy in a specific working space during the day. Get insights into which working spaces are the busiest in the building at any given time (day/month/year). View the number of desks or meeting rooms occupied by tenants on an hourly basis during the day. View the occupancy trend of desks and meeting room usage during weekdays to support the space and service planning. View the currently available number of desks or meeting rooms in buildings together with the workspace's name.	Available

C. Cooperation of Customer and dependencies

- The data displayed by the BuildingMinds Platform and all its dashboards and reports depend on the IT systems integrated and data input (including metadata and BIM data) provided, kept accurate and up-to-date by Customer.
- Some of the data displayed by the BuildingMinds Platform and its dashboards and reports are based and dependent on third-party models, guidelines, and other third-party input that may or may not be publicly available. BuildingMinds cannot verify such third-party input for its accuracy and completeness. Such third-party input may prove incorrect or incomplete or be updated, replaced, or otherwise modified over time. BuildingMinds will regularly update and replace third-party input used if updates, newer versions and/or types of third-party input deemed relevant by BuildingMinds are accessible, including from publicly available sources. Customers should consider this dependency when basing its decisions on data displayed by the BuildingMinds Platform and its dashboards and reports.
- Some of the features of the BuildingMinds Platform are based and dependent on a stable connection to third-party platforms or other IT systems and a continued offer of certain features of such third-party platforms or other IT systems. These third parties may cease such connection or change features of their platforms or other IT systems or such connection may be impacted by other events external to the BuildingMinds Platform. This all may in turn adversely impact related BuildingMinds Platform features. While BuildingMinds will strive to limit related impact on the BuildingMinds Platform, such actions of third parties or other events external to the BuildingMinds Platform are beyond BuildingMinds' control and BuildingMinds shall not be responsible for such

actions or events and their impact on the Customer. Customers should consider this dependency when using the BuildingMinds Platform.

- The single sign-on (SSO) functionality requires a one-time setup (as part of onboarding services provided by BuildingMinds under separate agreements) in collaboration with an IT system administrator of Customer who is authorized and empowered to register the BuildingMinds Platform with the identity provider (IdP) of Customer's domain. The BuildingMinds Platform currently supports only the following identity providers: Azure AD and OKTA. For other identity providers, the single sign-on functionality cannot be integrated, and the default 2-factor-authentication functionality can be used instead. The BuildingMinds Platform also supports only one integrated identity provider per Customer.

- To provide data visualization through 2D/3D models of real-estate objects, such models need to be provided by Customer or can be delivered by BuildingMinds through separate Professional Services.

- APIs or export options for the existing customer IT systems and third-party IT systems (e.g., IoT cloud systems) in use by Customer and containing Customer Building Data need to be provided and maintained by Customer during the subscription term of the BuildingMinds Platform Services.

- Activities that are part of onboarding services provided by BuildingMinds under separate agreements may include further details and requirements on system integrations and data exports, such as data sources to integrate, frequency of data updates, and process for data updates. This information may impact onboarding planning, timelines, and budgets.