



G R E S B[®]

2018

Resilience Reference Guide

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The 2018 GRESB Real Estate Resilience Module Reference Guide (“Reference Guide”) accompanies the 2018 GRESB Real Estate Resilience Module and is published both as a standalone document and in the GRESB Portal alongside each Module indicator. The Reference Guide reflects the opinions of GRESB and not of our members. The information in the Reference Guide has been provided in good faith and is provided on an “as is” basis. We take reasonable care to check the accuracy and completeness of the Reference Guide prior to its publication. While we do not anticipate major changes, we reserve the right to make modifications to the Reference Guide. We will publicly announce any such modifications. The Reference Guide is not provided as the basis for any professional advice or for transactional use. GRESB and its advisors, consultants and sub-contractors shall not be responsible or liable for any advice given to third parties, any investment decisions or trading or any other actions taken by you or by third parties based on information contained in the Reference Guide. Except where stated otherwise, GRESB is the exclusive owner of all intellectual property rights in all the information contained in the Reference Guide.

Introduction

The GRESB Resilience Module is an optional supplement to the GRESB Real Estate and Infrastructure Assessments. It has been developed in response to organizations that are developing a capacity to assess, manage and adapt in the face of social and environmental shocks and stressors.

Worldwide, the frequency, size and cost of disasters is increasing, driven by climate change, population growth, rapid urbanization, and other factors. Sustainability efforts are critical in helping mitigate these factors, including action to reduce greenhouse gas emissions; increase the use of clean, renewable energy sources; conserve water resources; and plan safe, equitable communities. These efforts are essential and must be continued and expanded. At the same time, businesses or communities must prepare for the changes that lie ahead. Organizations need to identify hazards, assess risks, and systematically adapt to a changing climate and changing world.

Long-term, global trends including population growth, urbanization, and climate change ensure that efforts to manage property and infrastructure in the future cannot entirely rely on past experience. Scientific evidence points to significant change, along with great uncertainty about local and regional impacts. The challenges of this dynamic future are daunting, but they are not without hope and opportunity. Scientists can already make reliable predictions about many types of impacts, along with information needed to identify the most vulnerable places and people. In parallel, new technologies and strategies are emerging that can mitigate local hazards, reduce risks, and protect life and property. The availability of this understanding and opportunities for positive action create the need to understand how property and infrastructure companies are acting to use these tools to manage risk and, in some cases, seize business opportunities.

These circumstances have motivated the development of the new GRESB Resilience Module. The Module has two primary goals:

1. Meet investor demand for information about the resilience of property and infrastructure companies and funds; *and*
2. Provide more information about strategies used by property and infrastructure companies to assess and manage risks from social and environmental shocks and stressors, including the impact of climate change.

Definition of Resilience

Resilience is a broad concept and the term is used in different ways. There is no single, authoritative definition for resilience. The Resilience Module defines resilience as "the capacity of companies and funds to survive and thrive in the face of social and environmental shocks and stressors." This operational definition encompasses physical, economic, and social dimensions of resilience, including, but not limited to, climate change. This definition is consistent with widely-referenced authorities such as the Financial Stability Board Task Force for Climate-related Financial Disclosures, the U.S. National Institute of Science and Technology, the Rockefeller 100 Resilient Cities program, national green building rating systems, and many others.

This definition includes consideration for both short-term shocks and long-term stressors. *Shocks* are the big events that disrupts to a system – floods, fires, earthquakes, terrorist attacks. *Stressors* are the underlying vulnerabilities that leave companies and communities susceptible when shocks occur, such as poverty, income inequality, environmental degradation, ageing infrastructure. Consequently, managing for resilience includes both preparing and responding to shocks, as well as addressing underlying stressors.

Business Case for Resilience

According to the Global Assessment Report on Disaster Risk Reduction 2015, investments rarely account for hazard exposure, or greatly discount those risks when investment horizons are short (UNSIDR 2015). A recent study by the U.S. National Institute of Building Sciences estimates that every \$1 spent in hazard mitigation is worth \$6 in recovery (NIBS 2017). The economic benefits of building resilience extend beyond reduced damage and improved recovery from disasters, to include additional benefits such as reduced operating costs, revenue enhancements from improved marketing, company brand, and project image, and improved foundation for public private partnerships (ULI 2015). These benefits extend beyond the \$6 in recovery, and can be achieved even if disasters never come.

The economics of investing in resilience can be challenging, in part, because of irreducible uncertainties in the nature of future events. However, uncertainty should not be an excuse inaction. Companies and funds can identify practical, “no regrets” actions that can be implemented within dynamic and responsive management systems. This helps protect business value and build trust with tenants, customers, investors, and other stakeholders. Tools and methods to design such management strategies are emerging, and they are likely to become widely used in near future (NIST 2015).

Resilience and Climate Change

The Resilience Module addresses the management of multiple types of social and environmental shocks and stresses, including climate change. This approach recognizes that climate change is an overriding social and environmental challenge, while also appreciating that future risks are the product of multiple, often interacting factors. Property and infrastructure companies cannot manage any one issue in isolation and, in practice, risk mitigation practices have multiple motivations and cross-cutting benefits. Consequently, the Module – operating in tandem with indicators in the core assessments – seeks to provide insight into leadership, risk assessment, and management strategy to promote resilience to climate change and concurrent challenges.

Limitations

The Resilience Module will provide investors with information needed to understand how real estate and infrastructure companies and funds are preparing for potentially disruptive events and changing conditions, assessing long-term trends, and becoming more resilient over time. The Module seeks to evaluate the capacity of *organizations* to assess and respond to risks and opportunities related to climate, environmental, social, economic, technological and geopolitical changes through asset resilience and the organization’s management capacity (Green Star Applied Innovation Challenge, 2017). This means that the Resilience Module does not attempt to provide an assessment of risks to individual assets, and the results should not be interpreted as an indicator of risks to any specific asset.

Timeline

The Resilience Module is planned as a three-year effort:

- **Year 1:** An initial high-level screen intended to raise awareness, motivate internal discussion, and provide a basic level of transparency for investors. Scoring in Year 1 will be based on a simple rubric: a "Yes" answer + self-reported level of association with descriptions + provision of relevant evidence. GRESB will not attempt to evaluate the contents of the evidence. This information will be used to develop a more rigorous scoring methodology for Year 2.

- **Year 2:** Build upon the high-level criteria with more rigor with respect to the contents and quality of evidence. The Year 2 scoring methodology will include: a "Yes" answer + self-reported level of association with descriptions + evaluation of the degree to which the evidence supports the answer and description.
- **Year 3:** Migrate selected indicators to the core GRESB assessments, test additional performance indicators, and, where appropriate, align indicators and evidence requirements with industry standards and guidelines.

Structure

The Resilience Module is organized in four sections:

1. Leadership and Team
2. Resilience Assessment
3. Management Objectives and Strategies
4. Implementation and Improvement

The 10 indicators in the module will be supplemented by information from the core GRESB assessments (e.g., Real Estate RO3.1, RO3.2 and Infrastructure MA1, MA2, PD1, RO1, RO5, and ME2) to generate an overall Resilience score.

The Resilience Module contains indicator structures familiar to users of GRESB Real Estate or Infrastructure. Each item consists of a "Yes or No" question. Either choice provides the option of providing additional text comments. Selecting "Yes" provides a set of sub-questions to refine the response and the option to provide supporting evidence in the form of an uploaded document or hyperlink.

Scoring

In Year 1, all indicators in the Resilience Module receive equal weight with the exception of RS 9 and RS 10 which are required, but not scored. Each scored indicator will receive credit at one of four levels: none (0), partial minus (1), and partial plus (2), or full (3). Scoring may be revised in subsequent years to improve differentiation and establish a competitive benchmark.

Data access

Participants in the Resilience Module can control access to Module results via the GRESB Portal by checking a box to confirm whether they wish to share their Module results with their investors. If a participant shares its Module results, these will appear as a separate section in that participant's Real Estate Scorecard and Benchmark Report. If a participant does not share its results, Resilience Module results will not appear in the Scorecard and Benchmark Report. This selection can be changed upon request to info@gresb.com. Aggregated information from all Resilience Module participants will be used as the basis for a market report and related research.

GRESB Resilience Indicators

RS0 Would you like to participate in the Resilience Module?

- Yes
- No

Not scored

RS1 Does the organization have a senior employee responsible for resilience issues associated with this entity?

- Yes

The most senior employee responsible for resilience is:

- The same individual as the senior decision-maker responsible for sustainability (identified in the Management Aspect of the main assessment).
- A different individual from the senior decision-maker responsible for sustainability.

Name: _____

Job title: _____

E-mail: _____

LinkedIn profile (optional): _____

Describe the individual's resilience-related qualifications (maximum 250 words): _____

- No

Provide additional context for the answer provided (maximum 250 words):

3 points

Intent

Assess entity's leadership for resilience. Qualified senior leadership is an important factor in an effective strategy to promote resilience across the organization and its assets.

Requirements

The requirement for full credit in Year 1 is an answer "Yes" and provision of relevant supporting evidence.

Evidence

Year 1: Evidence is the required description of the individual's resilience-related qualifications.

Year 2: No change expected.

Year 3: No change expected.

RS2 Does the organization have a cross-departmental team or group to coordinate and execute resilience activities?

Yes

"The organization has a cross-functional group or team whose duties include assessing and improving resilience for the entity."

For the reporting period, this description is:

- Not descriptive
- Somewhat descriptive
- Mostly descriptive
- Completely descriptive

"Each asset in the entity's portfolio has a cross-functional group or team whose duties include assessing and improving the resilience of the facility."

For the reporting period, this description is:

- Not descriptive
- Somewhat descriptive
- Mostly descriptive
- Completely descriptive

UPLOAD OR URL _____

Indicate where in the evidence the relevant information can be found _____

No

Provide additional context for the answer provided (maximum 250 words):

3 points

Intent

Assess the organization's leadership and collaboration for resilience. Effective management of resilience requires an interdisciplinary team linking senior decision makers with facility managers and a variety of other stakeholders, including multiple internal departments and external partners. High functioning teams serve to break down institutional silos and support knowledge sharing critical to resilience decision-making across the organization, and to inform planning priorities across short, medium and long term timeframes.

The team or group responsible for an asset does not necessarily have to be on-site. However, the intent that each asset has a group or team directly responsible for asset-level management, that the group works directly with site-level operational personnel and stakeholders, and that a local chain of responsibility is in place during emergencies.

Requirements

The requirement for full credit in Year 1 is:

1. An answer "Yes";
2. Full association ("completely descriptive") with the practice description; and
3. Provision of relevant supporting evidence.

Responses meeting some of these requirements will receive partial credit.

The descriptions of asset-level management provides the opportunity to categorize typical practices for the organization. The following criteria provide one way to classify the entity's management:

1. **Not descriptive:** < 5% of assets have teams or groups responsible for resilience
2. **Somewhat descriptive:** 5-50% of assets have teams or groups responsible for resilience
3. **Mostly descriptive:** 50-95% of assets have teams or groups responsible for resilience
4. **Completely descriptive:** >95% of assets have teams or groups responsible for resilience

Circumstances may suggest other ways to make this classification. Alternative approaches are allowed with the caveat that the evidence should include an explanation of this alternative classification.

Evidence

Year 1: Any relevant evidence will be accepted.

Year 2: Evidence will be evaluated for information about the composition and mandate of the teams, including departments and functions represented at the entity and asset level.

Year 3: Same as Year 2.

RS3 Does the organization actively identify and engage stakeholders potentially impacted by social and environmental shocks and stressors?

Yes

"The organization identifies and works with stakeholder groups, including vulnerable populations, that may be impacted by social and environmental shocks and stressors."

For the reporting period, this description is:

- Not descriptive
- Somewhat descriptive
- Mostly descriptive
- Completely descriptive

Select the types of stakeholders that are included (select all that apply):

- Employees
- Janitorial, maintenance, groundskeepers and other operational staff
- Contractors
- Tenants
- Neighbors
- Supply chain workers
- Community based organizations
- Environmental organizations
- Government agencies
- Emergency services
- Other companies or businesses
- Other: _____

“Individuals, groups or teams responsible for each asset identify and work with stakeholder groups, including vulnerable populations, that may be impacted by social and environmental shocks and stressors.”

For the reporting period, this description is:

- Not descriptive
- Somewhat descriptive
- Mostly descriptive
- Completely descriptive

Select the types of stakeholders that are included (select all that apply):

- Employees
- Janitorial, maintenance, groundskeepers and other operational staff
- Contractors
- Tenants
- Neighbors
- Supply chain workers
- Community based organizations
- Environmental organizations
- Government agencies
- Emergency services
- Other companies or businesses
- Other: _____

UPLOAD OR URL _____

Indicate where in the evidence the relevant information can be found _____

No

Provide additional context for the answer provided (maximum 250 words): _____

3 points

Intent

Assess stakeholder identification, engagement, knowledge exchange, relationship and social equity building within the operations of the organization and asset. These activities are critical aspects of social resilience.

Requirements

The requirement for full credit in Year 1 is:

- An answer "Yes"
- Level of association with descriptions
- Provision of supporting evidence

Evidence

Year 1: Any relevant evidence will be accepted

Year 2: Evidence will be evaluated for information about nature and quality of stakeholder engagement activities, with emphasis on engagement with vulnerable populations.

Year 3: Same as Year 2.

RS4 Does the organization periodically assess the vulnerability of its assets to social and environmental shocks and stressors?

Yes

"The organization periodically assesses the vulnerability of all of its assets to social and environmental shocks and stressors. Assessments include consideration for historic hazards and future scenarios, including climate change. Information from the assessments is periodically communicated to decision makers."

For the reporting period, this description is:

- Not descriptive
- Somewhat descriptive
- Mostly descriptive
- Completely descriptive

Select the social and environmental shocks typically included in asset-level assessments (check all that apply):

- Biological
- Climatological
- Geophysical events
- Hydrological
- Meteorological
- Technological
- Social disruption
- Other: _____

Select the social and environmental stressors typically included in asset-level assessments (check all that apply):

- Physical factors/structural factors
- Social factors
- Economic factors
- Environmental factors
- Other: _____

Select the aspects considered in asset-level assessments (check all that apply):

- Risk to asset value
- Risk to tenants
- Risk to communities (particularly vulnerable populations)
- Risk to continuity of operations
- Risk to individuals working with or for the entity
- Other: _____

UPLOAD OR URL _____

Indicate where in the evidence the relevant information can be found _____

No

Provide additional context for the answer provided (maximum 250 words):

3 points

Intent

Assess the entity's ability to evaluate the physical, social and economic elements of their assets that are exposed to a range of stressors and shocks, and identify relative risks, opportunities, strengths and weaknesses in order to inform decision-making.

Answers to this indicator will be supported by answers to core assessment indicators, including Real Estate R03.1 and R03.2.

Requirements

The requirement for full credit in Year 1 is:

- An answer "Yes"
- Level of association with description
- Indication of the aspects of risk evaluated
- Provision of supporting evidence

Periodically refers to regular time intervals. At a minimum, vulnerabilities should be assessed every three years.

In **Year 1**, full credit will be given for responses that answer "Yes", select at least one answer from each of the sub-questions, and provide relevant evidence.

Year 2 and **Year 3** requirements will be developed based, in part, on responses in Year 1.

Examples of shocks include:

- **Biological shocks:** epidemics, insect/animal infestations
- **Climatological shocks:** extreme temperatures, drought, wildfire
- **Geophysical shocks:** earthquakes, landslides, volcanoes, tsunamis
- **Hydrological shocks:** floods, avalanches
- **Meteorological shocks:** hurricanes, cyclones, storms, wave surges
- **Technological shocks:** infrastructure failures, power outages, cyber-attacks
- **Social shocks:** conflicts, civil unrest, displaced populations

Examples of stressors include:

- **Physical:** building design or construction
- **Social:** poverty and inequality, social exclusion and discrimination
- **Economic:** capital reserves, access to capital, supply chain reliability
- **Environmental:** sea level rise, warming air temperature, air pollution

Evidence

Year 1: Any relevant evidence

Year 2: Evidence will be evaluated for information for the following characteristics:

- Holistic and systemic scope of assessment that includes physical, social and economic elements at the asset level and considers a comprehensive list of potential local shocks and stressors;
- Assessment of the different scenarios and shocks and stressors on all assets using at least one future time period (e.g. 2030, 2040, 2050 or 2070). This will include consideration of key trends over the time scales being assessed;
- Identification of vulnerability of critical infrastructure;
- Identification of the potential risks (likelihood and consequence) and opportunities for the assets;

- Details of stakeholder consultation undertaken during plan preparation to ensure key shocks and stressors and areas of further work are identified; and
- The individual roles responsible for delivering and reviewing the asset risk assessment.

Year 3: In addition to Year 2 criteria, evidence will be evaluated for information about alignment with a recognized third-party standard or guidelines.

References

[Green Star, Asset Resilience Innovation Challenge](#)

[United Nations Office of Disaster Risk Reduction PreventionWeb “Components of Risk”](#)

[International Disaster Database](#)

[Task Force on Climate-related Financial Disclosures](#)

RS5 Does the organization periodically assess the vulnerability of its business operations to social and environmental shocks and stressors?

Yes

"The organization periodically assesses the vulnerability of its overall business operations to social and environmental shocks and stressors. Assessments include consideration for historic hazards and future scenarios, including climate change. Information from the assessments is periodically communicated to decision makers."

For the reporting period, this description is:

- Not descriptive
- Somewhat descriptive
- Mostly descriptive
- Completely descriptive

Select the social and environmental shocks typically included in operational-level assessments (check all that apply):

- Biological
- Climatological
- Geophysical events
- Hydrological
- Meteorological
- Technological
- Social disruption
- Other: _____

Select the social and environmental stressors typically included in operational-level assessments (check all that apply):

- Physical factors
- Social factors
- Economic factors
- Environmental factors
- Other: _____

Select the aspects considered in operational-level assessments (check all that apply):

- Risk to entity value
- Risk to business income
- Risk to business expenses
- Risk to customers
- Risk to communities (particularly vulnerable populations)
- Risk to continuity of operations
- Risk to employees
- Other: _____

UPLOAD OR URL _____

Indicate where in the evidence the relevant information can be found _____

No

Provide additional context for the answer provided (maximum 250 words): _____

3 points

Intent

Assess the organization's ability to evaluate the physical, social and economic elements that are exposed to a range of stressors and shocks at the internal business operational level, and identify relative risks, opportunities, strengths and weaknesses of the organization in order to inform decision-making.

Requirements

The requirement for full credit in Year 1 is:

- An answer "Yes"
- Level of association with description
- Indication of the aspects of risk evaluated
- Provision of supporting evidence

Periodically refers to regular time intervals. At a minimum, vulnerabilities should be assessed every three years.

In **Year 1**, full credit will be given for responses that answer "Yes", select at least one answer from each of the sub-questions, and provide relevant evidence.

Year 2 and **Year 3** requirements will be developed based, in part, on responses in Year 1.

Evidence

Year 1: Any relevant evidence

Year 2: Evidence will be evaluated for information for the following characteristics:

- Holistic and systemic scope of assessment that includes physical, social and economic elements at the organizational level and considers a comprehensive list of potential local shocks and stressors
- Assessment of the different scenarios and shocks and stressors on business operations using at least one future time period (e.g. 2030, 2040, 2050 or 2070). This will include consideration of key trends over the time scales being assessed;
- Identification of vulnerability of critical infrastructure or systems that may impact organizational function;
- Identification of the potential risks (likelihood and consequence) and opportunities for the organization;
- Details of stakeholder consultation undertaken during plan preparation to ensure key shocks and stressors and areas of further work are identified; and

- The individual roles responsible for delivering and reviewing the asset risk assessment.

Year 3: In addition to Year 2 criteria, evidence will be evaluated for information about alignment with a recognized third-party standard or guidelines.

Examples of shocks include:

- **Biological:** epidemics, insect/animal infestations
- **Climatological:** extreme temperatures, drought, wildfire
- **Geophysical:** earthquakes, landslides, volcanoes, tsunamis
- **Hydrological:** floods, avalanches
- **Meteorological:** hurricanes, cyclones, storms, wave surges
- **Technological:** infrastructure failures, power outages, cyber-attacks
- **Social:** conflicts, civil unrest, displaced populations

Examples of stressors include:

- **Physical:** building design or construction
- **Social:** poverty and inequality, social exclusion and discrimination
- **Economic:** capital reserves, access to capital, supply chain reliability
- **Environmental:** sea level rise, warming air temperature, air pollution

References

[Green Star, Asset Resilience Innovation Challenge](#)

[United Nations Office of Disaster Risk Reduction PreventionWeb Components of Risk](#)

[International Disaster Database](#)

RS6 Has the organization established objectives and implemented strategies to promote resilience?

Yes

Objectives and strategies are established for:

New construction projects

Describe up to 3 objectives and related strategies (250 word maximum for each response, list in order of importance):

Objective 1: _____
Strategies: _____

Objective 2: _____
Strategies: _____

Objective 3: _____
Strategies: _____

New acquisitions

Describe up to 3 objectives and related strategies (250 word maximum for each response, list in order of importance):

Objective 1: _____
Strategies: _____

Objective 2: _____
Strategies: _____

Objective 3: _____
Strategies: _____

Standing investments

Describe up to 3 objectives and related strategies (250 word maximum for each response, list in order of importance):

Objective 1: _____
Strategies: _____

Objective 2: _____
Strategies: _____

Objective 3: _____
Strategies: _____

UPLOAD OR URL _____

Indicate where in the evidence the relevant information can be found_____

No

Not Applicable

Provide additional context for the answer provided (maximum 250 words):

3 points

Intent

Assess the entity’s objectives and strategies for promoting physical, social and economic resilience across standing investments, new construction projects and new acquisitions.

Requirements

Year 1: Any relevant evidence

Year 2: Evidence will be evaluated to find support for the stated goals and strategies relevant to new construction.

Year 3: In addition to Year 2 requirements, GRESB anticipated adding expectations for alignment with third-party standards and guidelines.

Not Applicable should be used only in cases such as when the entity does not build new assets.

Evidence

Resilience is a broad concept, and, at this time, it is interpreted in different ways by different organizations. Consequently, organizations may have a range of resilience-promoting goals. In practice, these goals may or may not be explicitly described as “resilience”.

For the purpose of the question, examples of resilience-promoting goals include, but are not limited to, topics such as:

- **Business continuity** (e.g. the ability of the organization and assets to maintain or resume function following disruptions)
- **Passive Survivability** (e.g., ability to survive for some period of time following disruptions without supporting infrastructure such as energy, water, food or roads)
- **Communications** (e.g., promoting information flow throughout the organization, diversifying communication modalities to prepare for disruptions or disasters, emergency communication protocols such as an Incident Command System)
- **Diversification of energy and water systems** (e.g., primary or supplemental systems such as micro-grids which can continue operating when the central electricity grid is down or reclaimed water connected to fire suppression systems)
- **Hazard-Specific Requirements** (e.g. either performance or prescriptive-based design, construction or operational requirements for assets in areas prone to specific hazard types, such as hurricanes or earthquakes)
- **Project-Specific Requirements** (e.g. either performance or prescriptive-based design, construction or operational requirements for specific asset types, such as hospitals, housing or transportation systems)
- **Partnerships** (e.g. establishing and maintaining mutually-beneficial relationships with government agencies, community groups, aid organizations, etc.)
- **“Safe to Fail” systems** (e.g. identifying and reducing the potential that a failure in one part of the system will cascade through other parts of the system)
- **Social cohesion** (e.g. the promotion of community-building activities within the organization or with the surrounding community)
- **Social equity** (e.g. including local stakeholders in decision-making that impacts them, ensuring that asset-level projects provide benefit to and do not displace local populations, providing living wages and fair working conditions to all workers)

Evidence should show a connection between the entity’s goals and specific strategies. For example, a management goal of promoting “business continuity” should be linked to a specific set of relevant actions, such as engineering solutions to reduce the likelihood of disruption to building services (e.g., elevation of electrical panels in flood prone areas to prevent damage), efforts to ensure employee access to facilities (e.g., providing accommodations on-site or within walking distance), and procedures to protect tenants (e.g., creating and testing emergency communications systems).

RS7 Did the organization take specific actions to promote resilience during the reporting period?

Yes

Please describe up to three examples of implementation actions:

Implementation Action #1

Describe an example of implementing the strategies outlined in the preceding question: _____

Implementation Action #2

Describe an example of implementing the strategies outlined in the preceding question: _____

Implementation Action #3

Describe an example of implementing the strategies outlined in the preceding question: _____

No

Not Applicable

Provide additional context for the answer provided (maximum 250 words):

Not scored

Intent

Provide examples of implementation actions taken to promote resilience during the reporting period.

Requirements

A response to this indicator is required to complete the Module. This indicator *will not be scored* in Year 1. Information will be used to inform the development of the Resilience Module in Year 2.

Not Applicable should be used only in cases such as when the entity does not have any physical facilities during the reporting period (e.g., Developer Assessment participants).

RS8 Can the organization describe its response to three illustrative disruptive, extreme or catastrophic events or near misses during the reporting period?

Yes

Please describe up to three events during the reporting period (if applicable)

Event #1

Describe the type of incident, impact, and insight gained from the incident:

Event #2

Describe the type of incident, impact, and insight gained from the incident:

Event #3

Describe the type of incident, impact, and insight gained from the incident:

No

Not Applicable

Provide additional context for the answer provided (maximum 250 words):

Not scored

Intent

Understand how the types of events experienced by the entity and, critically, how the organization and its asset managers learn from disruptive incidents.

Requirements

A response to this indicator is required to complete the Module. This indicator will not be scored in Year 1. Information will be used to inform the development of the Resilience Module in Year 2.

Responses for each event are limited to a maximum of 250 words and should contain information about:

- The type of event (e.g., fire, flood, heat storm, etc.)
- The impact of the event on the organization or a specific asset. The asset does not need to be specifically identified (i.e., it could be referred to generally as in “an office building in northern Europe...”)
- A concise description about how this experience informed and improved risk management for the asset and/or the organization as a whole.

If no relevant events occurred during the reporting period, then report on outcomes of drills, table-top exercises or similar activities.

Supporting Metrics - More information from the core assessments

The following indicators from the core assessments also provide valuable information about resilience. Responses to their indicators will be evaluated as part of the Resilience Module.

GRESB Real Estate Assessment indicators including:

- MA3** Sustainability team structure and function
- MA4** Leadership and responsibility
- PD1** Sustainability policy, including resilience
- PI1&2** Performance indicators for carbon, energy, renewables, etc.
- R03.1** Risk assessment for new acquisition
- R03.2** Risk assessment for standing assets
- ME2** Data management
- BC1** Building certifications

GRESB Infrastructure Assessment indicators, including

- MA1** Materiality
- MA3** Sustainability team structure and function
- PD1** Sustainability policy, including resilience
- PD5** Formal impact assessments
- R01** Environmental risk assessments
- R02** Social risk assessments
- PI3&4** Performance indicators for carbon, energy, renewables, etc.
- IM1** Risk mitigation actions
- CA1** Entity-level accreditations
- CA2** Asset-level accreditations

Definitions

Adaptation: The ability of systems to adjust to changing conditions. This includes the ability for human or natural systems to respond to the impacts of climate change and continue functioning.

Build back better: the leveraging of recovery, rehabilitation or reconstruction efforts to increase the resilience of an organization, asset or community in order to be better able to adapt and thrive in the face of future stressors and shocks. Also referred to as “bouncing forward,” in other words, the ability to not only bounce back to previous conditions after disruption, but the ability to be better than before.

Business continuity: The capability of an organization to continue delivery of products or services at acceptable predefined levels following disruptive incident (see ISO 22300)

Capacity: The capability of an organization to proactively and positively manage change. Resilience capacity is a function of an organization’s leadership, its ability to assess and understand threats and opportunities, its ability to plan and implement adaptive measures, and to continually improve. Capacity can be expanded in the context of an organization’s physical, social and economic systems.

Community: Community means persons or groups of people economically, socially or environmentally impacted (positively or negatively) by the organization’s operations. Communities are defined by association and connection, not geography. Resilience can be strengthened by supporting the bonds within and between communities.

Continual improvement: Ongoing commitment to improve processes, products and services. Requires the ability to reflect on and learn from experience.

Critical systems: The systems or components of systems that are essential to the operation of a building, infrastructure, organisation or process, and without which proper functioning would cease. In resilience assessments and planning, these are the most important systems to identify, understand, strengthen, back up, and isolate to prevent system failure.

Entity: The investable portfolio for which you are submitting the Resilience Module for.

Hazard: A potential dangerous or harmful occurrence that may cause loss of life, injury, destruction of property, loss of livelihood, disruption of business, damage to the environment, etc.

Mitigation: Actions that can be taken to lessen the likelihood or harmfulness of a potential hazard. Note that the word is used differently in the fields of climate change and risk management. In the climate change arena, mitigation generally refers to the reduction of greenhouse gas emissions and similar actions to reduce the causes of climate change, while actions taken to address the impacts of climate change (such as sea level rise or storm surge) are called adaptation. In the fields of risk management, mitigation refers to actions to reduce the likelihood or severity of risks on the ground, including hazards that are driven by climate change as well as those resulting from other causes (e.g. earthquakes). In the GRESB Resilience Module, the word is used in the latter context, referring to actions to lessen hazards from an operational standpoint.

New Acquisition: Purchase of an interest in an asset.

New Construction: Includes all activities to obtain or change building or land- use permissions and financing. Includes construction work for the project with the intention of enhancing the asset’s value.

Passive Survivability: The ability to maintain life-supporting functions and habitable conditions following a disruption in municipal services such as loss of power, water supply and site access. See LEED Pilot Credit: Passive Survivability and Functionality During Emergencies. <https://stg.usgbc.org/credits/new-construction->

Preparedness: The level of readiness of an organization or community to disruptions and disasters, for example through emergency planning, training, drills, and communication protocols.

Prevention: The stopping or avoidance of hazards. For example preventing flood damage by not building in a floodplain or by locating critical system components above potential flood levels.

Recovery: Efforts to restore (and ideally improve) full functionality of a business or community following a disaster.

Response: The ability of an organization to react to a disruption or disaster and provide in emergency efforts. Response activities typically include accounting and ensuring the safety of people, supporting those in need of rescue or assistance, protecting property and processes, communicating with emergency responders, etc.

Resilience: The capacity of companies and funds to survive and thrive in the face of social and environmental stressors and shocks.

Risk: The combination of the likelihood that a hazard will occur, the potential severity of its consequences, and the level of vulnerability of people, assets or systems that are exposed. For example, the frequency and severity of heat waves in many places is increasing, leading to increased risk. This risk is higher for the elderly because they are more vulnerable to the impacts of heat and more likely to be socially isolated.

Senior decision-maker: A senior individual with sign off (approval) authority for approving strategic resilience objectives and steps undertaken to achieve these objectives. The accountable person can delegate the work to other responsible people who will work on the implementation and completion of the task, project or strategy.

Safe to fail: The design of systems that allows individual components to fail without causing cascading failures throughout the broader system. For example, in transit systems, the ability to isolate the failure of a single station, track or line without causing the entire system to shut down.

Standing Asset: As used in the GRESB Real Estate Assessment.

Stressor: Underlying vulnerabilities within community, organization or place that reduce the capacity of the system to plan for, adapt to, cope with or recover from disasters. Can also be thought of as slow moving disasters on their own. Examples include poverty, unemployment, racial inequality, public health concerns, environmental pollution, crumbling or poorly planned infrastructure, changing climate, etc. Addressing underlying stressors is a fundamental component of resilience. See **Shocks**

Shock: Sudden, sharp, disruptive events that threaten a community, organization or place. Examples include hurricanes, fires, floods, earthquakes, violence, terrorism, economic collapse (see **Hazard**). There is some fluidity between **shocks** and **stressors**, for example, rising temperatures associated with climate change can be seen as a stressor (as the long term trend undermines the ability of communities to cope with a variety of challenges) and a shock (for example when sudden heat waves occur that cause direct health problems and deaths).

Stakeholder: A person or group that can be directly or indirectly affected by the operations of the organization, and that may require or be able to provide assistance during disasters.

Strategy: An action taken to achieve an objective.

Social equity: Ensuring that all people and groups (regardless of race, class, gender, age, etc.) have fair and just access to resources, rights, legal protections and participation in decisions that impact.

Social cohesion: The level of connections, relationships and bonds within and across communities that can be drawn on to improve quality of life, mental health, sense of purpose and innovation in normal times and to facilitate disaster preparedness, response and recovery. Must be linked with social equity to avoid exacerbating social divisiveness.

Vulnerable populations: Disadvantaged sub-sections of a community, such as the economically disadvantaged, racial and ethnic minorities, the uninsured, low-income children, the elderly, the homeless, people with disabilities or chronic illness, etc.)

Resources

- [100 Resilient Cities](#)
- [B-Ready Building Resilience Assessment Tool](#)
- [Building Resilience-LA](#)
- [City Resilience Index](#)
- [Global Adaptation & Resilience Investment Working Group](#)
 - [“Bridging the Adaptation Gap: Approaches to Measurement of Physical Climate Risk and Examples of Investment in Climate Adaptation and Resilience”](#)
- [Enterprise Green Communities Ready to Respond Toolkit](#)
- [Green Star, Asset Resilience Innovation Challenge innovation-challenges/](#)
- [Insurance Council of Australia Building Resilience Rating Tool](#)
- [Insurance Institute for Home and Business Safety](#)
 - [“The Mutual Benefits of Business Continuity and Community Resilience”](#)
 - [Fortified](#)
- [International Disaster Database](#)
- [International Standards Organization](#)
 - [22316: 2017– Security and Resilience:](#)
 - [22301– Organization Business Continuity](#)
 - [31000–Risk Management](#)
- [Resilient Design](#)
- [Social Equity](#)
- [National Institute of Building Sciences “Natural Hazard Mitigation Saves: 2017 Interim Report”](#)
- [National Institute of Standards and Technology](#)
 - [Community Resilience Planning Guide](#)
 - [Community Resilience Economic Decision Guide](#)
- [PEER](#)
- [RAND Corporation](#)
 - [Community Resilience Toolkits](#)
 - [Resilience in Action](#)
 - [Resilience Dividend Valuation Model](#)
- [Resilience-based Earthquake Design Initiative \(REDi\) Rating System](#)
- [Resilience Action List and Credit Catalogue \(RELi\)](#)
- [Resilient Design Institute](#)
- [SASB Standards to Inform Enterprise Risk Management \(ERM\)](#)
- [Social Economic Environmental Design \(SEED\) Network](#)
- [World Business Council for Sustainable Development Social Capital Protocol](#)
- [Task Force for Climate-Related Financial Disclosure](#)
- [US Chamber of Commerce, Building Resilience 101 Workbook](#)
- [U.S Federal Emergency Management Administration, Comprehensive Preparedness Guide 201: Threat and Hazard Identification and Risk Assessment Guide](#)
- [U.S. Department of Homeland Security, Leaders in Business Community Resilience](#)
- [U.S. Department of Homeland Security, Business Continuity Planning Suite](#)
- [United Nations Office of Disaster Risk Reduction](#)
 - [PreventionWeb](#)
 - [Private Sector Alliance for Disaster Resilient Societies \(ARISE\)](#)