THE ENVIRONMENTAL CERTIFICATION BAROMETER

Edition

2016

A study conducted by **Green Soluce** in partnership with **France GBC**





PREFACE



The Green Soluce team is pleased to present the 2016 edition of the Environmental Certification Barometer.

This third edition, prepared in partnership with France GBC and with the support of HBS Research, again this year aims to support the decisions of stakeholders in sustainable commercial real estate.

What's new compared to the 2015 edition?

Enriched content has introduced a focus on trends for categories of retail assets, and particular attention has been paid to the impact of greening on the two "QCA" and "Croissant Ouest" business districts in and around Paris. The 2016 Barometer seeks, in particular, to study investors' acquisition choices and the impact of certification on the attractiveness of offices for both sale and rent within this scope.

We warmly invite you to take a look at the results for this new edition: enjoy reading!

Nicolas REGNIER | President of Green Soluce



France GBC is fortunate to be the communications partner for this 2016 edition and, as such, to continue to support a first-rate study.

Indeed, the Environmental Certification Barometer presents reliable figures on the current situation concerning the main environmental certification schemes in France. It provides reliable benchmarks for real estate and sustainable building professionals, required for objective analysis and decision-making. As an annual study, the Environmental Certification Barometer is an opportunity to take a closer look at the underlying green-building market trends in France. The new attention paid to retail assets as well as to the link between environmental certification and the value of assets provides additional helpful insight for decision-makers in real estate.

Thank you to Green Soluce & enjoy the study!

Meka BRUNEL | President of Ivanhoé Cambridge Europe

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THE AUTHORS



Green Soluce is a consulting firm that specialises in real estate and the sustainable city of the future.

Our multi-disciplinary, multi-lingual team (able to work in French, English, German and Spanish) combines three areas of expertise utilised to differentiate and support the success of projects led by public and private businesses and organisations:

- Environmental, societal and digital strategy and innovation on individual building, district and city-wide levels
- Technical engineering for all areas of building sustainability
- Expertise in preparing public and private funding applications
- Design and deployment of effective communications



HBS-Research is a company that has set out to provide real estate professionals with the means to create value through digital technology. This value has been recognised by several organisations including BPI Excellence, Les Mercure HEC, Tremplin Sénat, FAST50 by Deloitte, DataConnexions and FrenchWeb 500. It has subsequently created the first database of buildings using Open and Big Data. To date, this database describes more than 3.5 million properties in France. Furthermore, HBS-research also carries out strategic marketing research on behalf of real estate investors and developers, allowing them to find assets and seek users.

Contact : www.greensoluce.com

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NF HQE[™], LEED[®] and BREEAM[®] certifications

Three environmental certifications stand out in the French commercial real estate market: NF HQE[™] certification, BREEAM[®] certification and LEED[®] certification.

NF HQE™ certification

"Haute Qualité Environnementale" (High Environmental Quality) is a project management system aiming to master the impacts of a new construction or refurbishment project on the external environment as well as on users' comfort level and health, all the while controlling the operational processes linked to the strategic planning, design and construction phases. The goal of this approach is to achieve the Environmental Quality of the Building (QEB).

The certification is delivered by the certification body Certivéa, following audits of the Operational Management System (SMO/OMS) and of the Environmental Quality of the Building (QEB), which are each subjected to separate technical schemes. QEB is composed of fourteen targets, divided

into the four following categories: Energy, Environment, Health and Comfort.

An HQE 2016 reference document is currently being drawn up by the HQE association to help stakeholders in construction design sustainable buildings. This is a more comprehensive approach based on economic as well as environmental and societal factors, and which thereby supports the three pillars of sustainable development. This new reference document is made up of five principles, four commitments and twelve objectives. Non-correlated to the traditional phases of a project, these benchmarks aim to be simpler in order to support cross-collaboration between all stakeholders in a project.

BREEAM[®] certification

"Building Research Establishment Environmental Assessment Method" is a method of assessing a building's environmental performance in terms of the design, construction and operations of sustainable buildings, developed by the BRE (Building Research Establishment), a private British organisation.

Among the different available versions of ${\sf BREEAM}^{\circledast},$ only the ${\sf BREEAM}^{\circledast}$ International scheme is used in France.

A first certification process takes place in the strategic planning and design phases.

BREEAM[®] certification is itself divided into the ten following categories: Management, Health and Wellbeing, Energy, Transport, Water, Materials, Waste, Land Use, Pollution and Innovation.

LEED[®] certification

"Leadership in Energy and Environmental Design" is an American system of assessing the environmental performance of new constructions or refurbished buildings delivered by the GBCI (Green Building Council Institute).

The requirements for LEED® certification are divided into the seven following credit categories: Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation in Design and Regional priority.

The first five categories refer to the Environmental Quality of the Building. The last two categories refer to the use of innovative technologies and the geographic location of the project, which can help achieve bonus points if regional environmental priorities are addressed.

Internationally, other certifications are used such as the German DGNB certification "Deutsche Gesellschaft für Nachhaltiges Bauen e.V.", also called GeSBC, "German Sustainable Building Council". However, this certification is not yet widespread enough in France to be relevant for the purpose of this study.

For more information on these certifications, please don't hesitate to consult the study «International environmental certifications for the design and construction of non-residential buildings», published in June 2015 by France GBC.

METHODOLOGY

The objective of the Environmental Certification Barometer 2016:

The 2016 Barometer aims to be a decision support tool for contracting owners in the commercial real estate sector. It therefore presents a reliable and objective overview of the current situation and trends in terms of environmental certification for non-residential property.

It aims to compare, on the same quantitative terms, the three main certifications chosen in France.

The information used in this study comes from the following databases provided by the three certification bodies:

NF HQE™

http://www.certivea.fr/nos-certifications/certifications-batiments-non-residentiels/nf-HQE®-batiments-tertiaires

• BREEAM®

http://www.greenbooklive.com/search/scheme. jsp?id=202

• LEED®

http://www.usgbc.org/projects

The data were retrieved on December 31st 2015.

In order to compare the data, they have undergone detailed sorting and verification.

Analysis methodology:

The initial databases being relatively heterogeneous, certain methodological principles have been put in place to ensure that the information is reliable.

The following differences have, for example, been noted:

- Certified real estate projects are not necessarily registered under the same name, depending on the certifying body.
- Certain projects may have been registered and interim audits validated, but may not have completed the certification process.
- Some projects are often carried out and delivered in stages, each one receiving a certificate, which may therefore create duplicates.
- Certifications, particularly for operations and maintenance, have validity dates that often require annual monitoring reports to be extended. Only certifications valid as at 31/12/2015 have been taken into account.
- Certain projects have changed ownership during the certification process and appear in the lists several times.

For this reason, and to gather the data in a reliable and consistent way without creating duplicates, the following elements have been integrated or taken into account:

- The nature of the activity hosted by the operation and the type of work (new or refurbishment) have been re-verified for each NF HQE[™], LEED® and BREEAM® project, and this based on overlaps in terms of the surface area, type of owner, land register, sale and rental offers, construction permits and leases,
- For statistics linked to the number of projects, all commercial activities included, only the main activity in terms of the largest surface area is chosen in order to avoid duplication (in the case of multiple activities within the same operation),
- Each operation has been geo-localised,
- The term «operation» refers to one or several new or existing buildings or buildings that have been refurbished, identified by a single address,
- An operation is considered as certified if it has passed the project completion audit, or if it has effectively validated the annual monitoring report audit in the case of operations and maintenance certification.

How is green building doing in the commercial real estate sector in 2016?

1 I What do the figures say about certified operations under construction or undergoing refurbishment?

The 2016 edition provides an update of the 2015 edition and is the result of new operations entering the certification process, operations whose certification process has not yet been completed or those for which the certificate has been withdrawn. Although Figure 1 below shows the results for both ongoing operations and delivered projects, the rest of this Barometer will focus solely on operations for which all stages of the certification process have been validated, subject to exceptions.

STARTING POINT





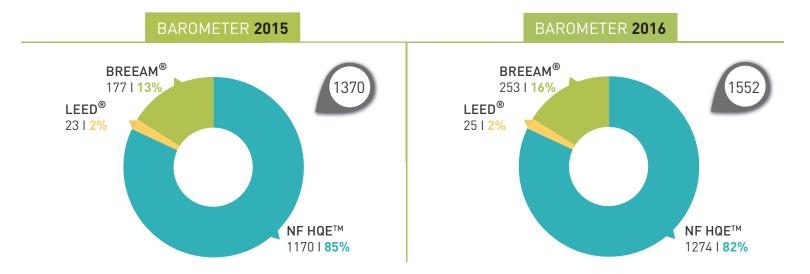


Figure 1 | Breakdown of the number of certifications (cumulated) for operations certified or in the process of certification in France by type of certification



965 NF HQE™, **BREEAM®** and **LEED® certifications have been re-ceived**, all sectors included, since the launch of environmental certification on the French market.

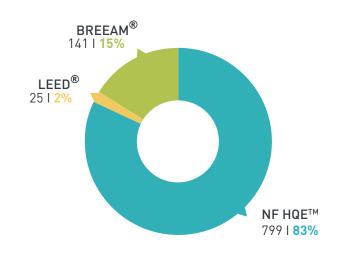


Figure 2 I Breakdown of the number of certifications (cumulated) in France by type of certification

What is the certification trend for the French market?

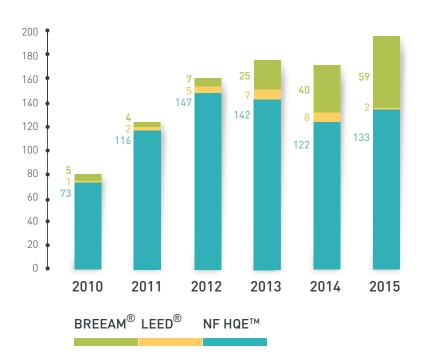
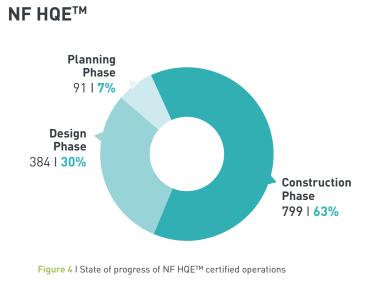


Figure 3 I Change in the breakdown of certifications received in France over the last five years

This refers to the number of **certifications received**. Therefore, a double-certified operation (**NF HQE™ and BREEAM**[®] for example) will be counted twice.

475 NF HQE™ certifications and **112 BREEAM® certifications** were in the process of being certified as at 31 December 2015.







91 operations passed the first stage of the NF HQE[™] certification process (the planning phase audit),

384 operations passed the second stage of the NF HQE™ certification process (the design phase audit),

799 passed the three stages of the NF HQE™ certification process (the planning, design and construction phases).

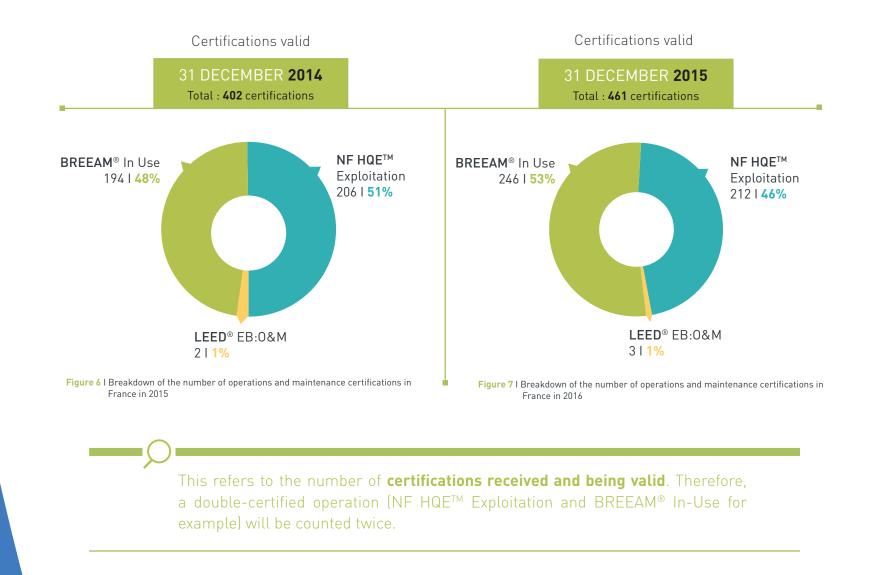
112 operations passed the Interim stage of the $\ensuremath{\mathsf{BREEAM}}\xspace^\circ$ certification process.

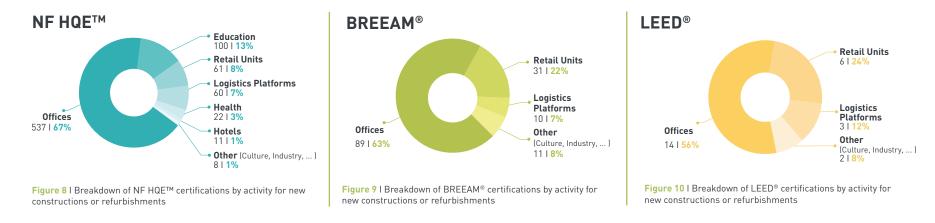
141 operations passed the two stages of the BREEAM® certification process (Interim and Final).

25 operations successfully completed the LEED® certification process. However, although the LEED® assessment system includes information exchange with the certification body during the project, the database provided by the USGBC does not show that certificates are attributed at interim stages, unlike the NF HQE™ and BREEAM® certifications.



2 I What do the figures say about certified operations and maintenance projects?

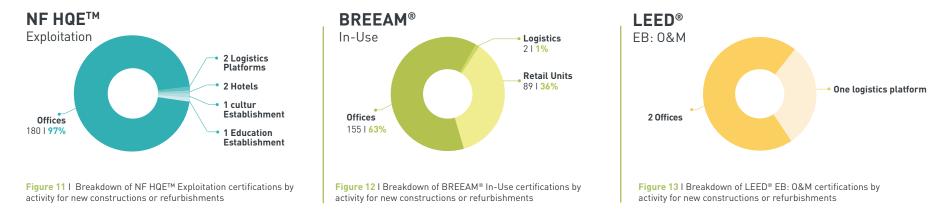




3 I What business sectors are certified for new operations and refurbishments?

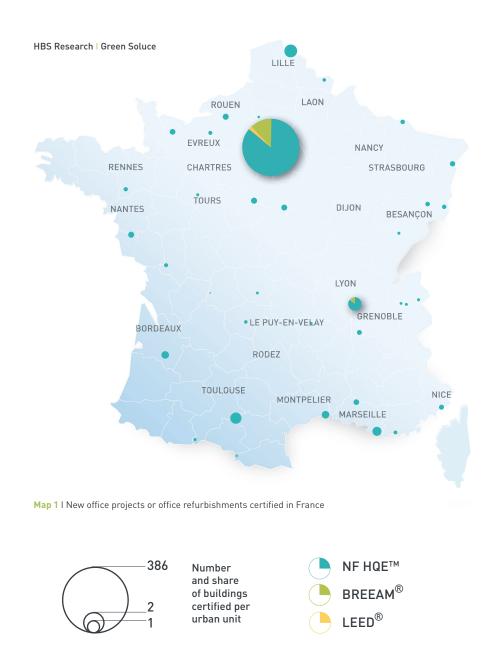
Owners of offices, educational institutions, retail units and logistics platforms are most in demand of environmental certification.

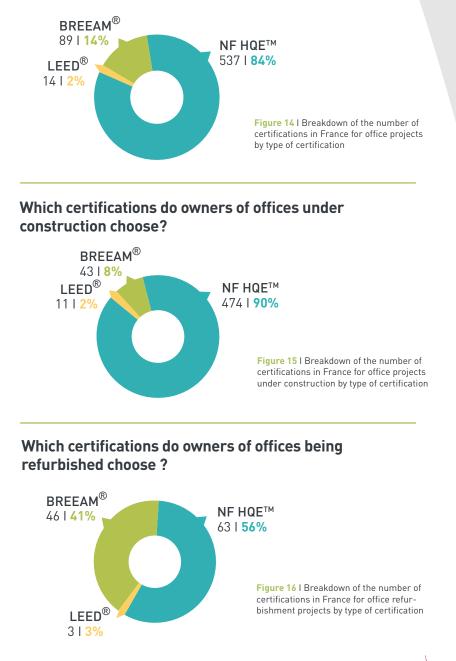
4 I Which business sectors are certified for operations and maintenance projects?



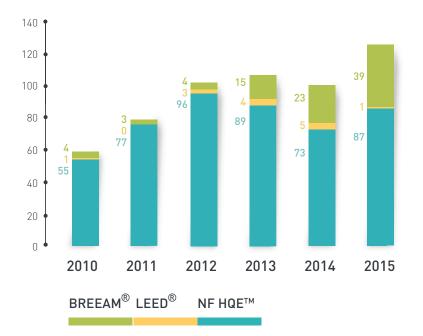
Owners of retail units are more likely to seek BREEAM® In-Use environmental certification.

Chapter II Which certifications were chosen for office projects?









1 I What are the certification trends for new office projects and office refurbishments ?

Figure 17 I Change in the number of certified office projects delivered per year

This refers to the number of **certifications received**. Therefore, a double-certified operation (HQE[™] and BREEAM[®] for example) will be counted twice.

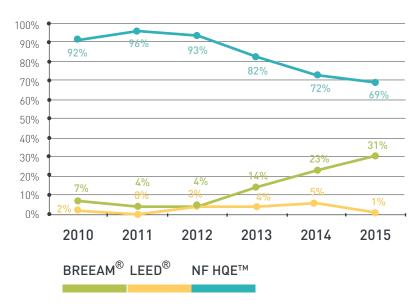
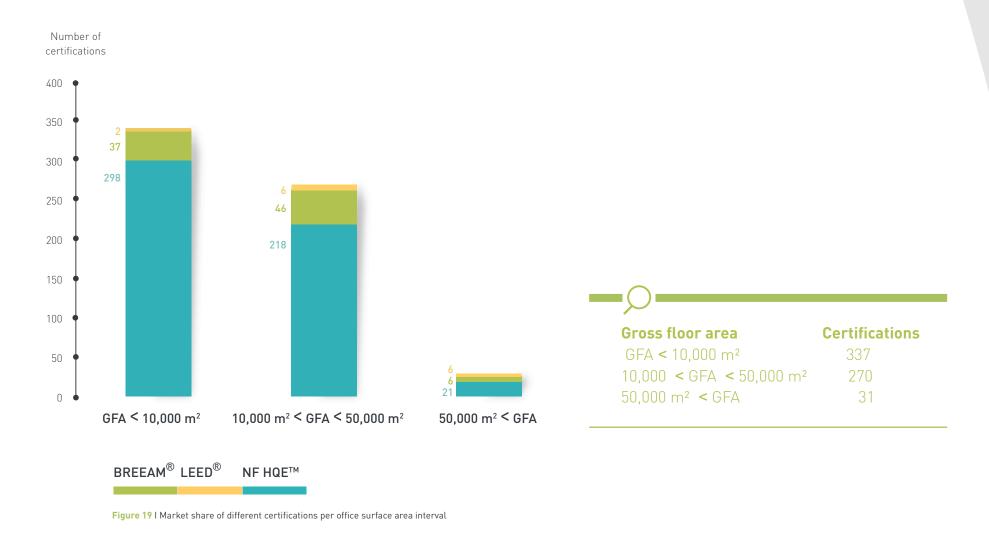


Figure 18 I Change in the breakdown of certifications received in France for office projects over the last five years

The HQE certification represents **69%** of certifications received in 2015 and BREEAM[®] represents **31%**.

2 I Which certification is favoured according to the surface area of the office project?





3 I What level of performance is targeted for office projects?

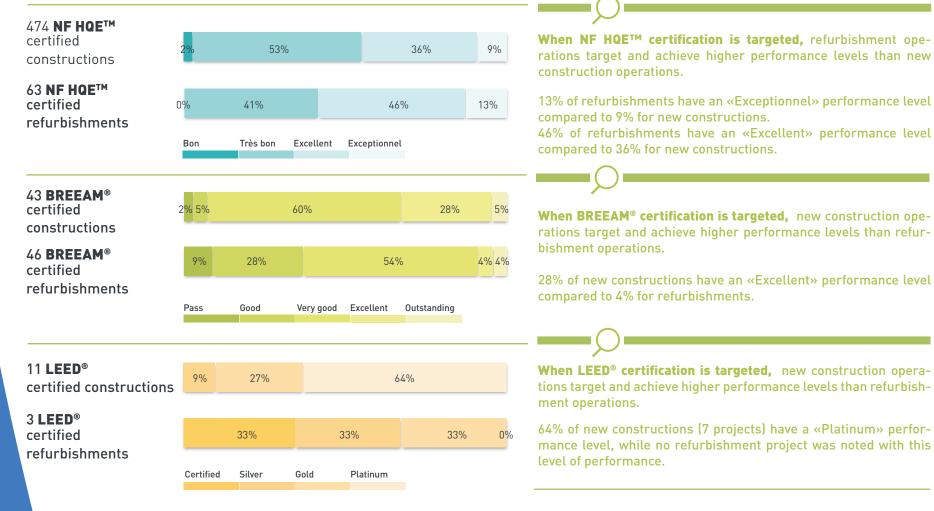
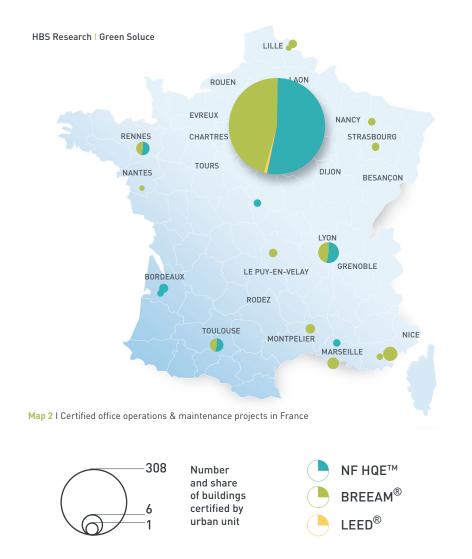
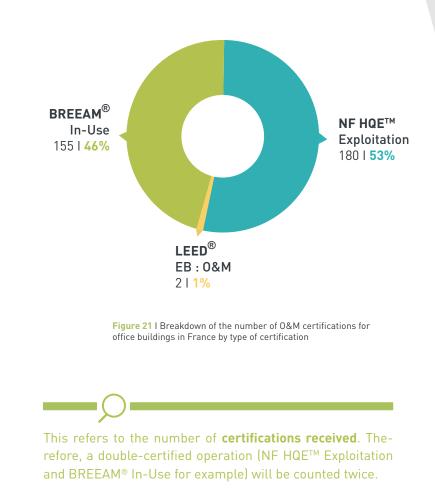


Figure 20 I Breakdown of levels of certification performance for new office or office refurbishment projects

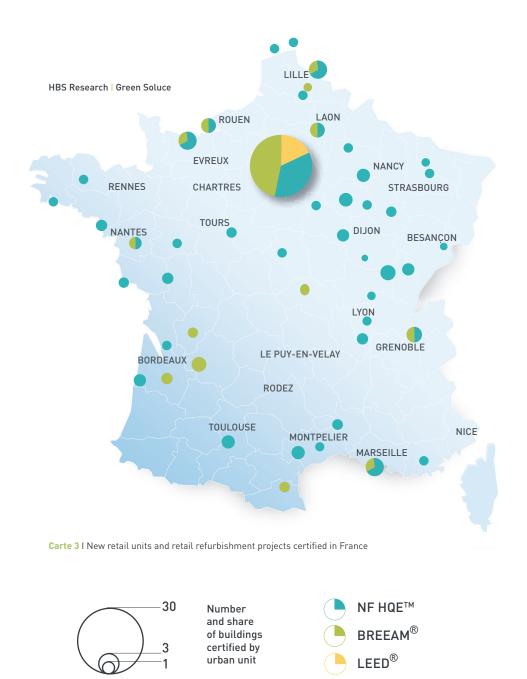
4 I Which certifications were chosen for office operations and maintenance projects?

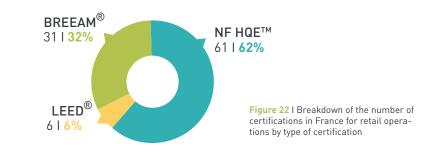






Chapter III Which certifications were chosen for retail operations?





Which certifications do owners of retail operations under construction target?



Which certifications do owners of retail operations under refurbishment target?





1 I What are the certification trends for new or refurbishment retail operations?

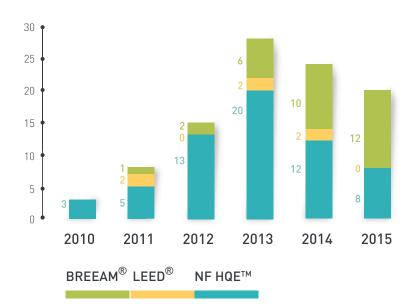


Figure 25 I Change in the number of certified retail operations delivered per year

This refers to the number of certifications received. Therefore, a double-certified operation (NF HQE™ and BREEAM[®] for example) will be counted twice.

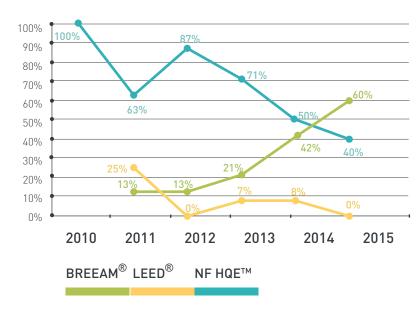


Figure 26 I Change in the breakdown of certifications received in France for retail operations over the last five years

The BREEAM[®] certification represents 31% of certifications received in 2015 and HQE represents 40%.

2 I Which certification is favoured according to the surface area of the retail unit?

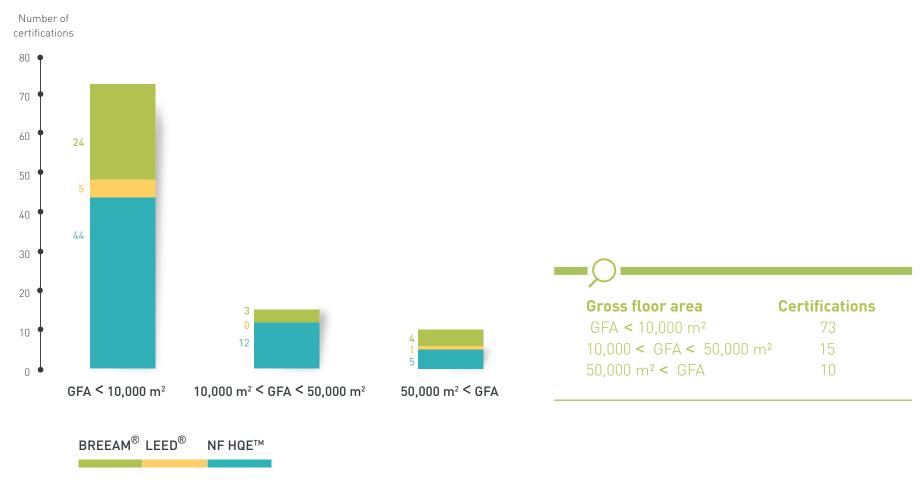


Figure 27 | Breakdown of the different certifications received by retail-unit surface area



3 I What level of performance is targeted for retail operations ?

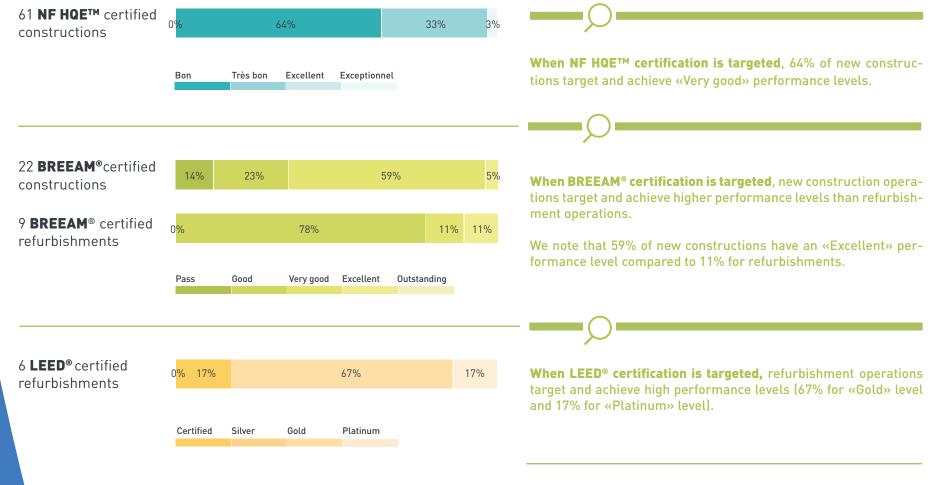
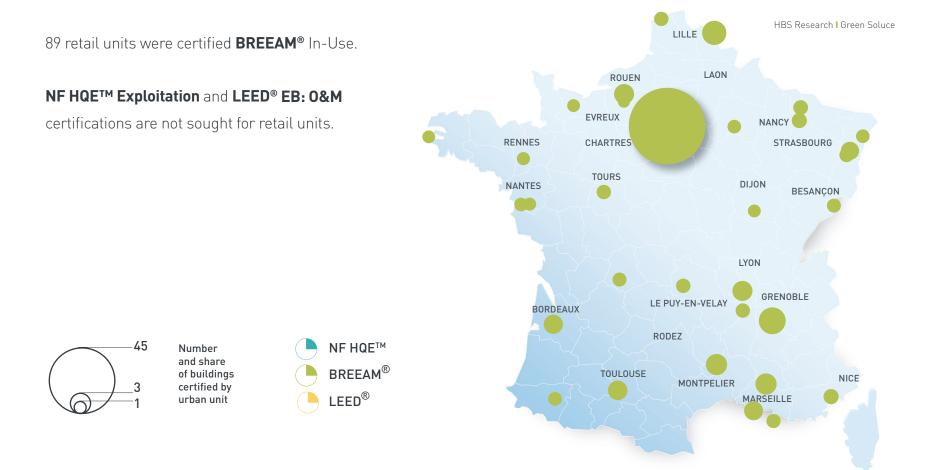


Figure 28 | Breakdown of levels of certification performance for retail operations

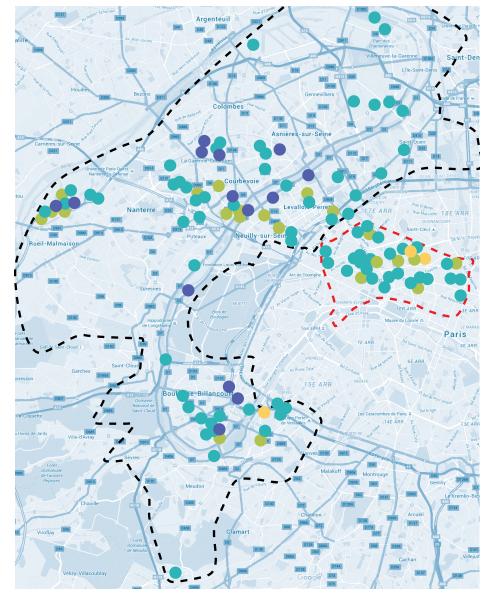
4 I Which certifications were chosen for retail-unit operations and maintenance projects?



Map 4 | Retail-unit operations and maintenance projects certified in France



How do the figures reflect the decision-making dynamics of investors in the strategic business districts of Paris?



Map 5 I Certifications in two strategic business districts: the Quartier Central des Affaires (QCA) and the Croissant Ouest

1 I What are the dynamics for the strategic business districts?

In order to assess the potential «value» added by the different certifications, two business districts were chosen for the analysis: the Quartier Central des Affaires (QCA) and the Croissant Ouest.

This choice is justified by the numerous certified operations in the Île-de-France region, much higher than the rest of France, and by the nature of these perimeters considered as major business districts on a metropolitan scale.

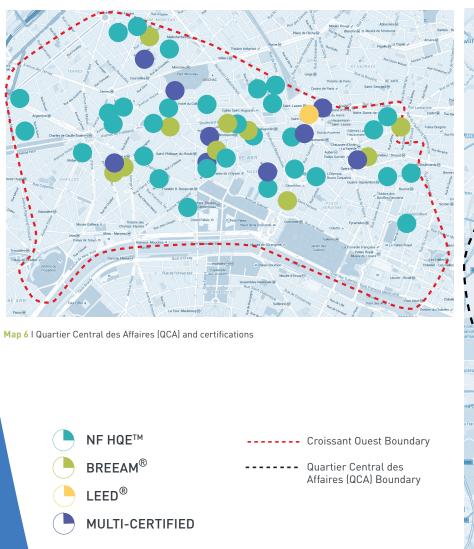
The main central business hubs are identified by INSEE, based on a certain number of criteria, particularly total employment density, as well as other indicators such as the volume of salaried employment, the density and share of management, the number of major establishments and head offices with more than 100 employees or even their degree of specialisation. Central business hubs also accommodate a significant number of offices.

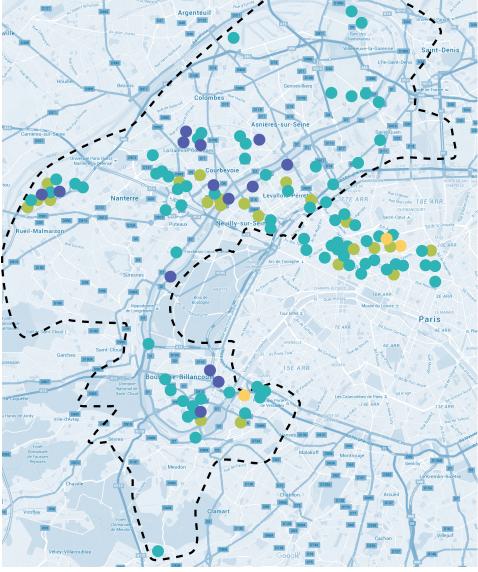


^{1:} Combination formed by the 1st, 2nd, 8th, 9th, 16th and 17th Paris arrondissements

2: Combination formed by the communes of Courbevoie, Nanterre, Puteaux, Rueil-Malmaison, Suresnes, Neuillysur-Seine, Levallois-Perret, Boulogne-Billancourt, Issy-les -Moulineaux, Meudon, Sèvres, St-Cloud, Asnières-sur-Seine, Bois-Colombes, Clichy, Colombes, Gennevilliers, La Garenne-Colombes and Villeneuve-La-Garenne.







Map 7 | Croissant Ouest and certifications

How significant are single certifications and multiple certifications for new office or office refurbishment projects?

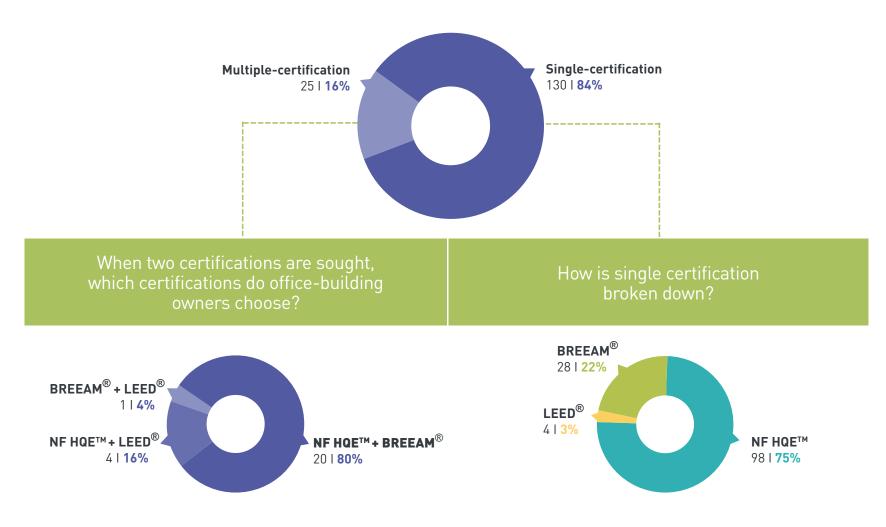


Figure 29 I Breakdown of certifications for new office and office refurbishment projects in the QCA and Croissant Ouest



2 I What certification trends exist for offices in the strategic business districts of Paris?

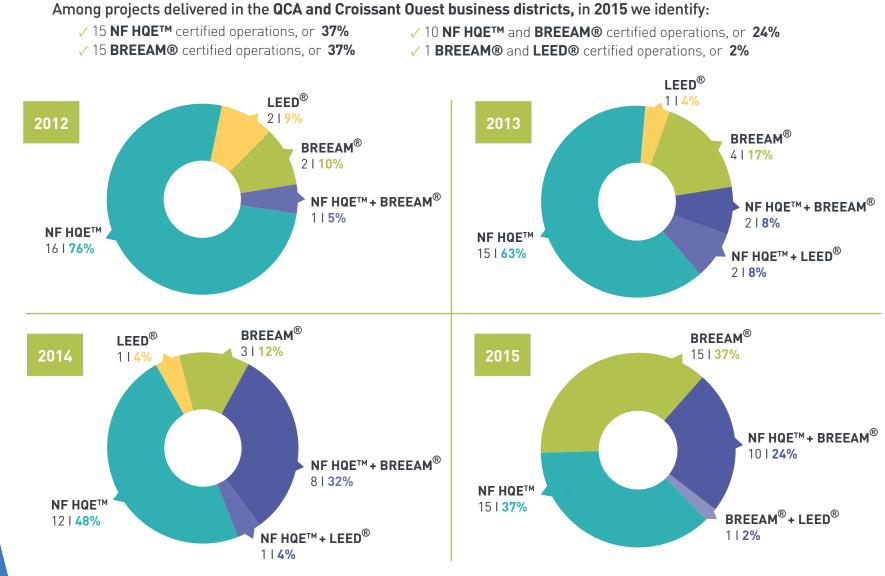


Figure 30 I Changes in the breakdown of certifications for new office and office refurbishment projects in the QCA and Croissant Ouest per year

3 I In the QCA and Croissant Ouest, which certifications are requested for office projects according to the surface area considered?

2 721 817 m² of office space are certified in the QCA and Croissant Ouest

When the office floor area is greater than 50,000 m², which certifications are requested by owners of buildings in the QCA and Croissant Ouest?

- 50% of them prefer NF HQE™ certification
- 25% of them prefer BREEAM[®] certification
- 13% of them prefer LEED® certification
- 13% of them prefer NF HQE™ and BREEAM[®] double certification

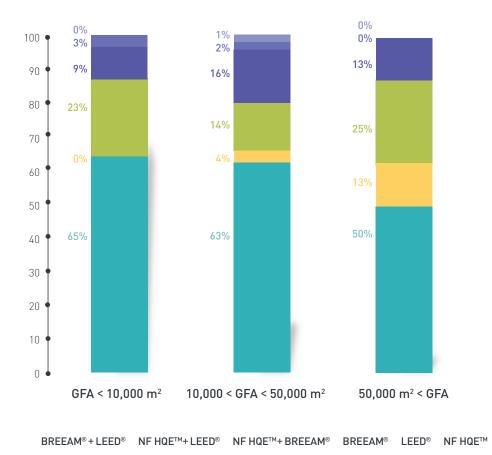


Figure 31 I Market share of the different certifications by office surface area interval for new office and office refurbishment projects in the QCA and Croissant Ouest



4 I What level of performance is targeted for offices in the QCA and Croissant Ouest areas?

When single-certification is targeted for an office project, the predominant performance levels on the market are:

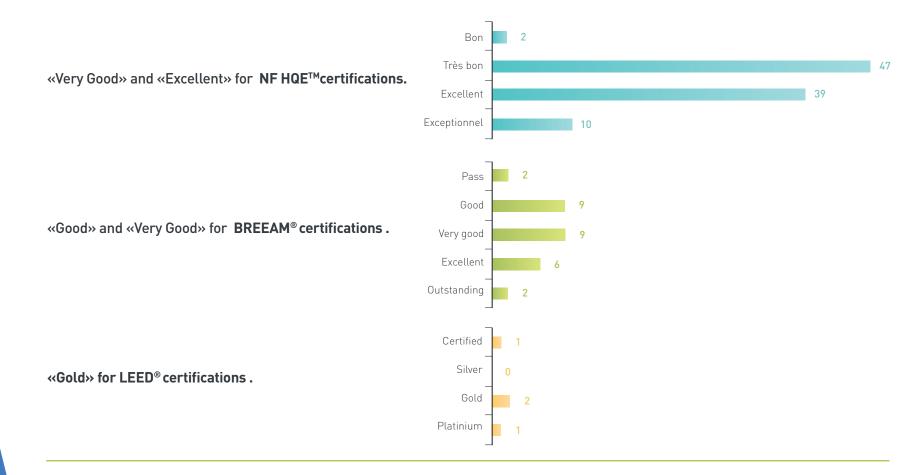


Figure 32 | Breakdown of performance levels for single-certification on new office and office refurbishment projects in the QCA and Croissant Ouest

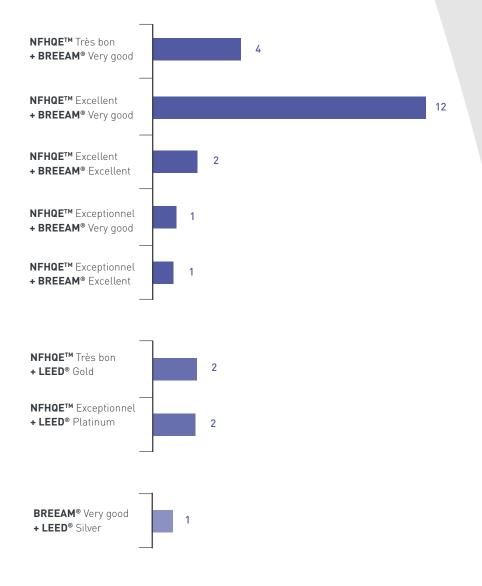
When **NF HQE™** and **BREEAM**[®] double-certification is targeted for the operation, the predominant performance level on the market is the «Excellent» level for NF HQE[™] associated with the «Very good» level for BREEAM[®].

When **NF HQE™** and **LEED**[®] double-certification is targeted for an operation, the achieved performance levels are:

- ✓ «Very good» for NF HQE™ associated with «Gold» for LEED®
- $\checkmark\,$ «Exceptional» for NF HQETM associated with «Platinum» for LEED $^{\circ}$

We counted one BREEAM[®] and LEED[®] double-certification with a «Very good» performance level for BREEAM® associated with a «Silver» level for LEED[®]. ✓ Platinum» for LEED[®].

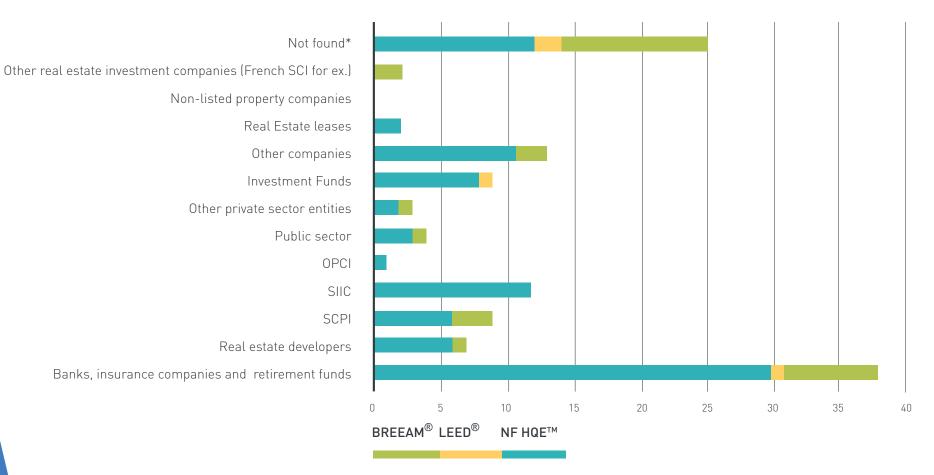
Figure 33 | Breakdown of performance levels for multi-certification on new office and office refurbishment projects in the QCA and Croissant Ouest





5 I What do the figures say about investors' acquisition choices?

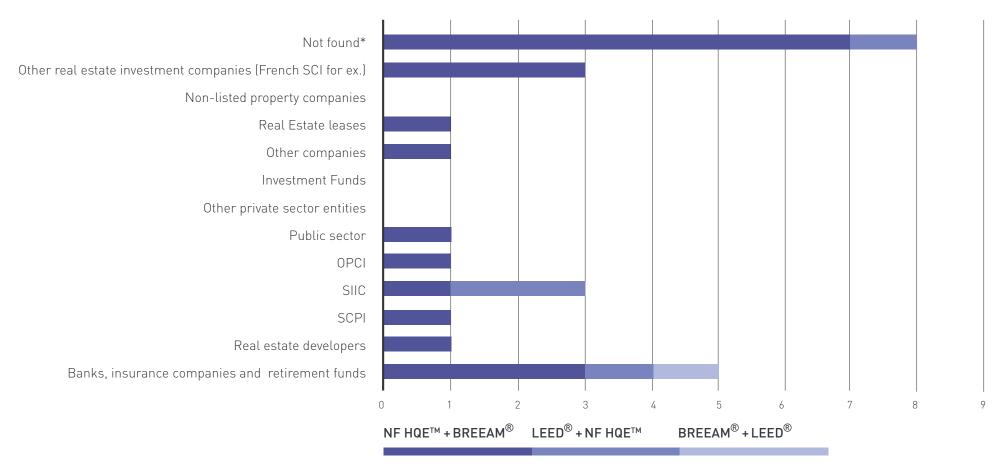
Scope studied: operations certified in the QCA and Croissant Ouest.



Which certification do project managers choose?

Figure 34 | Breakdown of investor types by single-certification on new office and office refurbishment projects in the QCA and Croissant Ouest

* This category refers to owners of real estate operations, which could not be identified in a sufficiently reliable manner due to the absence of sufficient information regarding the operation's address.



Which double-certification do project managers choose?

Figure 35 | Breakdown of investor types by multi-certification on new office and office refurbishment projects in the QCA and Croissant Ouest

*This category refers to owners of real estate operations, which could not be identified in a sufficiently reliable manner due to the absence of sufficient information regarding the operation's address.

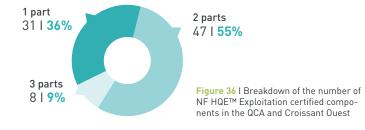


6 I Who initiates certifications for operations and maintenance projects?

Who initiates NF HQE[™] certification?

The NF HQE[™] Exploitation 2013 version involves and enhances the practices of three building stakeholders:

- The owner of the building: the intrinsic environmental quality of the building is assessed and certified by the "Bâtiment Durable" component (Sustainable Building) of the certification.
- ✓ The operator of the building: efficient environmental management of the building regarding operations and maintenance is assessed and certified by the "Gestion Durable" component (Sustainable Management) of the certification.
- ✓ The user of the building: best environmental practices regarding the use of private spaces are assessed and certified by the «Utilisation Durable» component (Sustainable Use) of the certification.

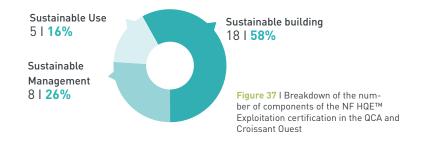


Combien d'axes sont certifiés sur une opération?

The initiative to enhance the use of the building may come from one or several players:

- For 31 projects, one body is involved in such a certification.
- For 47 operations, two bodies are involved in such a certification.
- For 8 operations, all three bodies are involved in such a certification

For operations with one certificate, which component is favoured?



For operations with two certificates, which components are favoured?



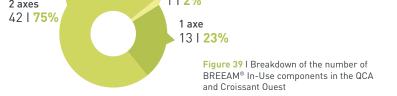
Who initiates the BREEAM® In-Use operations and maintenance certification?

La certification BREEAM In-Use® implique et valorise les pratiques de trois acteurs du bâtiment :

- ✓ The owner of the building: the intrinsic environmental quality of the building is assessed and certified by the "Asset Performance" component of the certification.
- ✓ The operator of the building: efficient environmental management of the building regarding operations and maintenance is assessed and certified by the "Building Management" component of the certification.
- ✓ The user of the building: best environmental practices regarding the use of private spaces are assessed and certified by the "Organisational Management" component of the certification.

3 axes 1 2% 2 axes

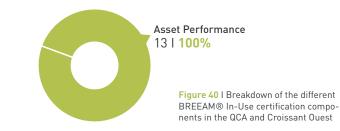
How many components are certified in an operation?



The initiative to add value to the building project may come from one or several players:

- For 13 projects, one body is involved in such a certification.
- For one operation, all three bodies are involved in such a certification

For operations with one certification, which component is favoured?



For operations with two certificates, which components are favoured?



Asset Performance + **Building Management**

> Figure 41 | Breakdown of the number of components for operations having two BREEAM® In-Use certifications in the QCA and Croissant Ouest



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ABOUT FRANCE GBC...

France GBC is the French network in sustainable building and urban planning and was founded at the end of 2010 as a non-profit organisation by the industry's leading corporate players. It is the French member of the World Green Building Council, the leading organisation at a global level, which gathers professionals committed to sustainable building in over 100 countries.

France GBC 's role is to accelerate change in favour of sustainable building. Thus, the organisa- tion's members are driven by 5 principles of action: to advocate, federate, encourage, provide support and benchmark in the field of sustainable building.

France GBC is a dynamic platform to exchange ideas, a space to address sustainable building issues and carry out lobbying together with all the main players of the industry: other associa- tions, professional federations, project owners, architects, major players in building & services, experts, investors, users, building operators & maintenance specialists. France GBC's members tackle sustainability issues both regarding domestic and non-domestic buildings.

The organisation is especially active on topics, which it is convinced are drivers of increased sus- tainable building: one is Corporate Social Responsibility in the real estate / construction industry, the second is affordable construction.

Internationally, France GBC is the spokes organisation of the French position on sustainable buil- ding and provides support in promoting French companies' services in sustainable building wit- hin the GBC network.

Some highlights of the work carried out by France GBC:

- French CSR reporting guide for the real estate / construction industry
- The France GBC Green Building Week
- The environmental reporting trophies
- The France GBC breakfast talks, organised in partnership with Business Immo Active involvement within the European GBC network
- ..



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