

The Sustainable
Construction
Observatory

BY SAINT-GOBAIN

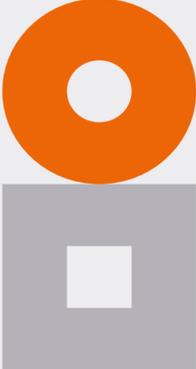
Sustainable Construction

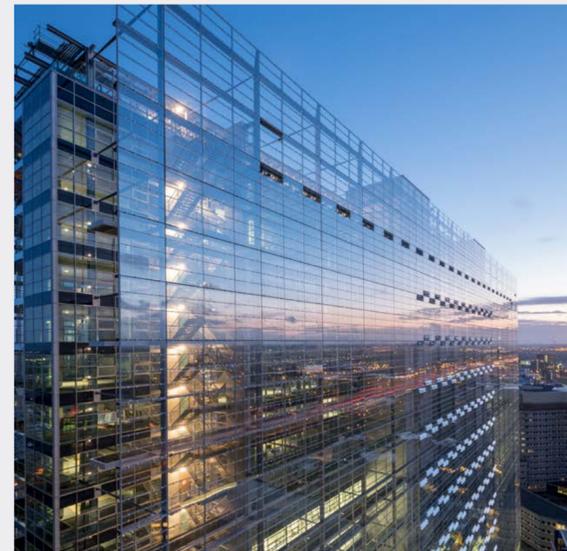
Barometer

2023 - 1st Edition



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Benoit Bazin
Chief Executive Officer
of Saint-Gobain

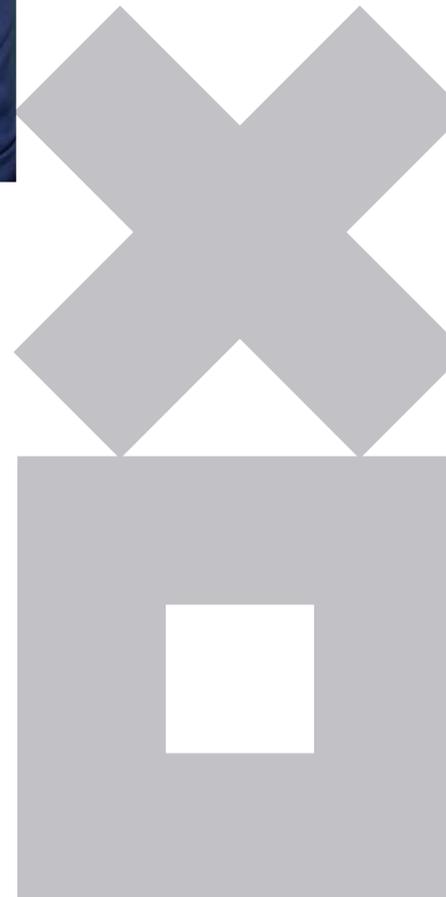
“The construction sector has a major role to play – a decisive role for the equilibrium of our planet and for humankind.”

In his opening address at COP 27 last December, António Guterres described climate change as “the defining issue of our age, the central challenge of our century”. This challenge is all the greater given demographic growth that refuses to slow and urbanization that continues to gather pace: by 2030, we are likely to have 2.5 billion more city residents.

In this rapidly changing world that is starting to embrace carbon neutrality, the construction sector must prove equal to the task. Let us not forget that this sector alone produces 37% of CO₂ emissions, consumes 50% of natural resources and generates 40% of our solid waste. Nor should we forget that housing and infrastructure are central to our societies and have constantly evolved as genuine waymarkers of our civilizations.

Today, I am convinced that the construction sector has a major role to play – a decisive role for the equilibrium of our planet and for humankind. Saint-Gobain displays this ambition in its purpose: *making the world a better home*. On every continent, our 168,000 employees embody this conviction, and, thanks to their active support, Saint-Gobain is leading the way in sustainable construction.

This leadership encourages us first of all to show the way, redoubling our efforts to offer increasingly sustainable solutions, improve our manufacturing processes and reduce our footprint. But it also requires us to drive this transition, both locally and globally, by involving all stakeholders. That is why Saint-Gobain wanted to create the Sustainable Construction Observatory, a unique tool for listening, informing and uniting. The Observatory’s first practical action is this international Barometer, to be recompiled annually, which offers us essential insights for accelerating transformation in the construction sector.



The Sustainable Construction Observatory

BY SAINT-GOBAIN

In the face of increasingly intensive planet-wide challenges, the construction sector must shift rapidly and comprehensively toward sustainable construction. The aim of this mobilization must be to drastically and permanently reduce construction-related greenhouse gas emissions, to preserve non-renewable natural resources, to reduce energy consumption and to provide decent, comfortable housing for all.

With its commitment to achieving carbon neutrality by 2050, the Saint-Gobain Group has voiced its ambition to be the worldwide leader in sustainable construction. Saint-Gobain is determined to play a key role in this transition and become a reference company that is both pioneer and driver to bring all stakeholders onboard.

In order to give this ambition concrete form, Saint-Gobain created the Sustainable Construction Observatory, with three objectives:



Listen

The Observatory takes the pulse of sustainable construction in the world: perception and reality, barriers and progress levers, anticipated solutions, the most active stakeholders, and so on. It allows us to measure progress and identify action areas in which to focus our collective efforts.

The Sustainable Construction Observatory sets up a worldwide Barometer each year and shares it with stakeholders and the general public.

Inform

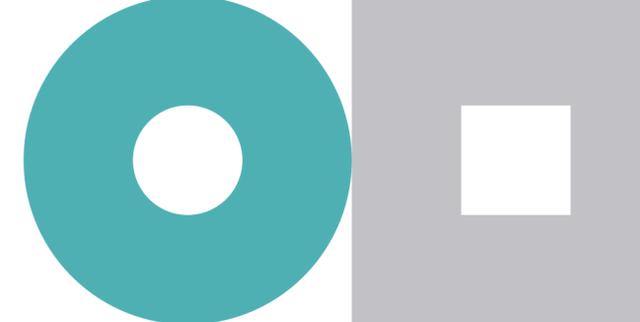
The Observatory compiles knowledge, testimonials and analyses relating to the challenges and solutions of sustainable construction: it is intended to be a tool for teaching and raising awareness, and an aid to decision-making for all the stakeholders concerned.

The Sustainable Construction Observatory provides a freely accessible, regularly updated online content platform dedicated to sustainable construction.

Unite

The Observatory brings together key figures from a still-fragmented worldwide market. Uniting construction professionals, institutions and citizens, it promotes the sharing of ideas and best practice and helps to create and roll out solutions.

The Sustainable Construction Observatory organizes regular international meetings around major multilateral events.



Methodology

French market research agency CSA carried out this survey between November 14, 2022 and January 4, 2023 with a sample of **802 respondents** aged 18 and over, from **10 countries** and distributed as follows:

- 201 **professionals** from the construction, architecture, housing and environmental sectors
- 202 **members of organizations and associations** in the fields of construction, housing, ecological transition and energy
- 200 **students** of construction, civil engineering, architecture and spatial design
- 199 **local elected officials**

➔ **An additional qualitative study on France can be found on page 24.**

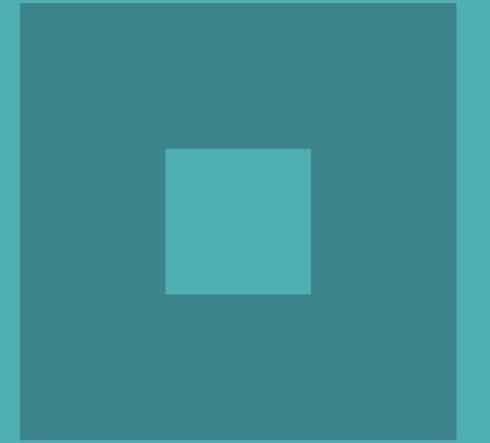


Survey method:

 Questionnaire conducted by telephone with professionals, associations and elected officials.

 Self-administered online questionnaire via social networks for the students.

Key insights



Sustainable construction is seen as a priority issue but remains very heterogeneous and incomplete in its knowledge

Of those surveyed, **88%** said they understood the concept of sustainable construction, but their definition includes mainly environmental issues, with less consideration of the health and well-being of the occupants. Sustainable construction requires consideration of all these parameters, from a building's construction to its end of life: reduced consumption and CO₂ emissions, preservation of natural resources and building users' well-being, for access to safe, comfortable housing.

From this environmental viewpoint, **89%** of respondents think we need to go further in terms of sustainable construction, and 70% consider it a priority.



Strong expectations towards elected officials and public institutions to accelerate sustainable construction

For **44%** of respondents, public institutions are best placed to drive forward sustainable construction. However, only 17% of elected officials say they have rejected public procurement projects that did not consider sustainable construction methods.

For 37% of respondents, stronger regulation is an important lever for accelerating the take-up of sustainable construction.

For the younger generation, more than institutions, it will be private companies (52%) and architects (51%) that will drive sustainable construction. Students have a different outlook, expressing a lack of confidence in public authorities – only 22% of students consider them capable of progressing sustainable construction.



There is still a long road ahead

Currently, only **30% of professionals are ready to implement more projects with a focus on sustainable construction** (regardless of the impact in terms of development time, supply of materials, and margins). But 57% of them believe that more than half of their activity will involve sustainable construction within five years. **The next few years will be crucial to supporting the sector** and ensuring the successful inclusion of all professionals in this sectoral transformation.

While **81% of students receiving tuition in sustainable construction believe it to be an asset in finding work**, this part of the sector remains somehow unattractive: 55% of students surveyed would accept a job offer from a company not invested in sustainable construction. Public and private entities must therefore redouble their efforts to create the necessary framework for the younger generation to achieve professional success in the sustainable construction sector.

Costs and training, two important levers to push for change

For **70% of respondents** (76% in the case of elected officials), **cost would be the main obstacle to increasing sustainable construction**. Over the coming years, the mass adoption of sustainable construction solutions will be the principal way to reduce costs. In addition, to allow a true comparison with traditional construction methods, it is essential that all stakeholders take greater note of, and communicate about, the cost of a structure across its entire life cycle (building, daily use, and the reuse or recycling of materials). By analyzing the entire life cycle of a structure and taking sustainability into consideration from the earliest stages of a project, much of the additional cost can be avoided.

Students, and people in emerging countries (Brazil, South Africa and India), consider the lack of training and qualification of professionals to be the main obstacle.

Less than 30% of professionals feel adequately trained in the area of sustainable construction.





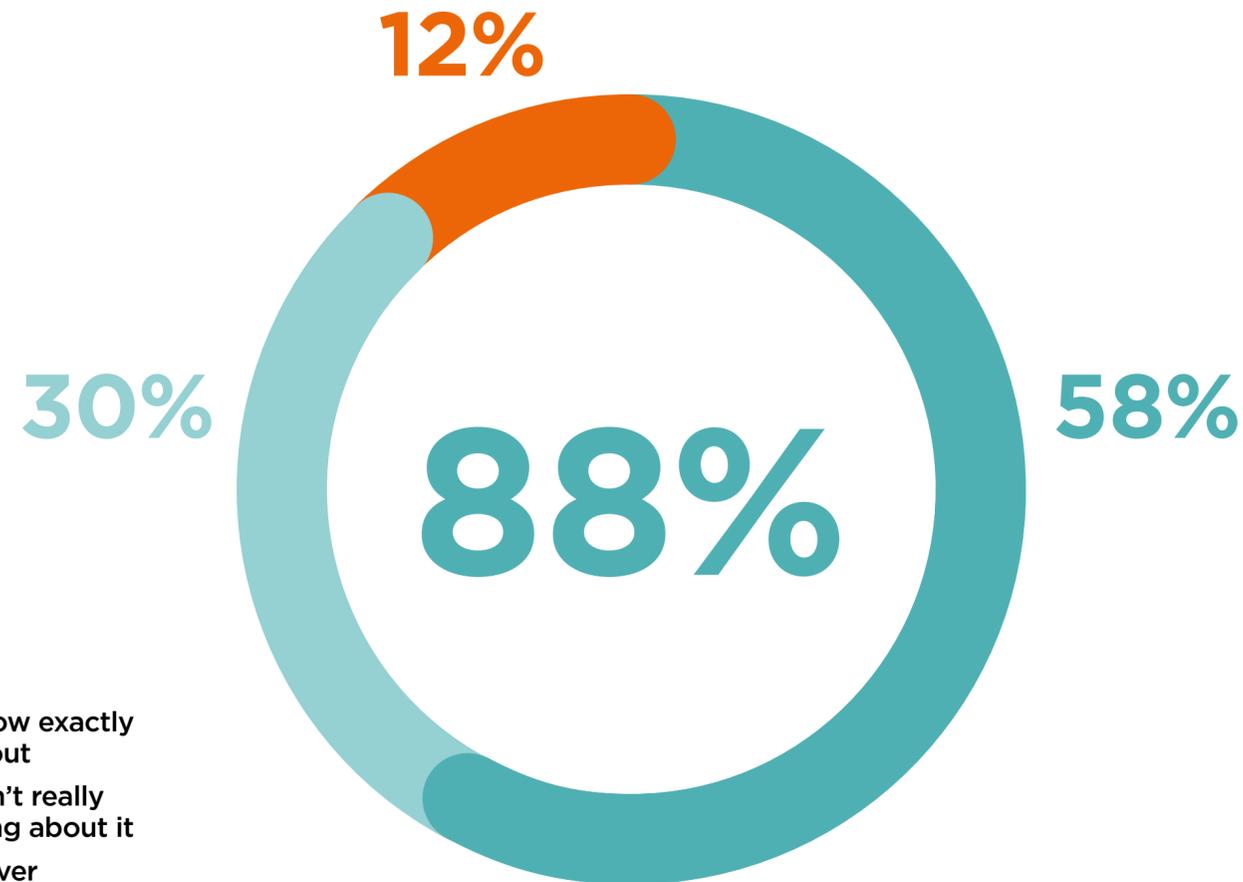
**Sustainable
construction:
global priority,
local solutions**



A concept that resonates

Are you familiar with the concept of sustainable construction, if only by name?

All respondents



- Yes, and I know exactly what it is about
- Yes, but I don't really know anything about it
- No, I have never heard of it

Base: all respondents (total 802)
Only one answer allowed



The concept of sustainable construction is familiar to 88% of respondents. While this figure shows that the concept is generally known, it should be noted that 30% of respondents realize that they are not fully aware of what is involved. Just over half of those surveyed (58%) consider themselves “aware”, demonstrating a need for education, even for specialists, who generally want to take action but are not always sure how.

More specifically, **students** and respondents from **European** countries claim greater knowledge of the concept: 94% of students and 94% of European respondents say they are familiar with sustainable construction.

Efforts should be focused on:

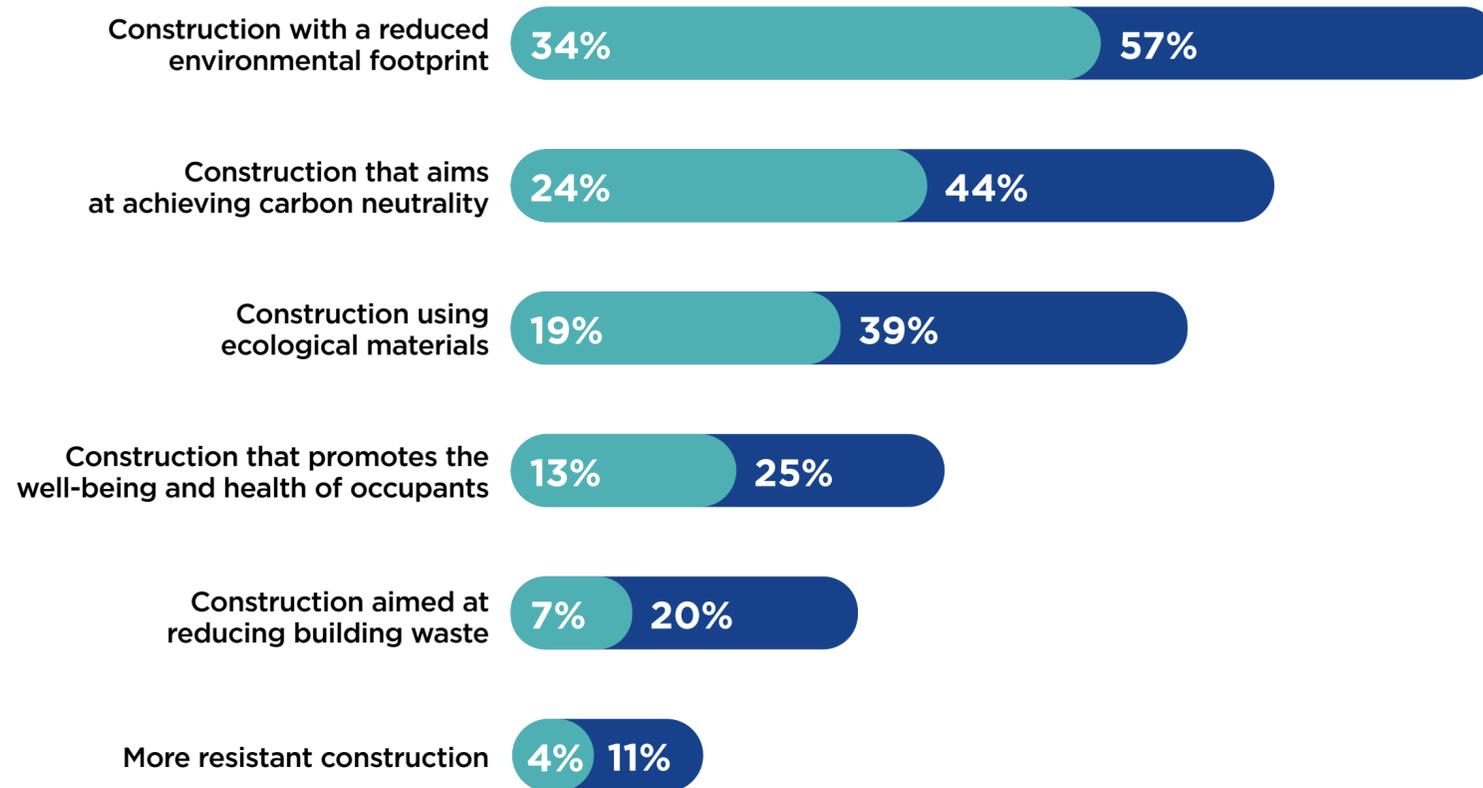
Elected officials, only 50% of whom say they really understand the concept.

Brazil, South Africa and India, where 51% of respondents on average claim a precise understanding, with only 48% in South Africa.

A concept associated with environmental protection

Which of the following definitions best apply to sustainable construction? Best match? Second-best match?

Aware respondents



Base: respondents aware of the sustainable construction concept (total 708)
Two answers allowed

● Top answer
● Total



Environmental footprint (57%) and carbon neutrality (44%) – **environmental issues** are most associated with sustainable construction. Other essential issues are relegated to a second tier, such as the impact on building users’ health and well-being (25%), and the resistance/resilience of our buildings (just 11%).

Younger generations (students) in particular prioritize the environmental definition (70%).

In South Africa and India, there is a more balanced view of sustainable construction, with health and well-being more widely recognized (by 35% and 39% of respondents respectively in these countries).

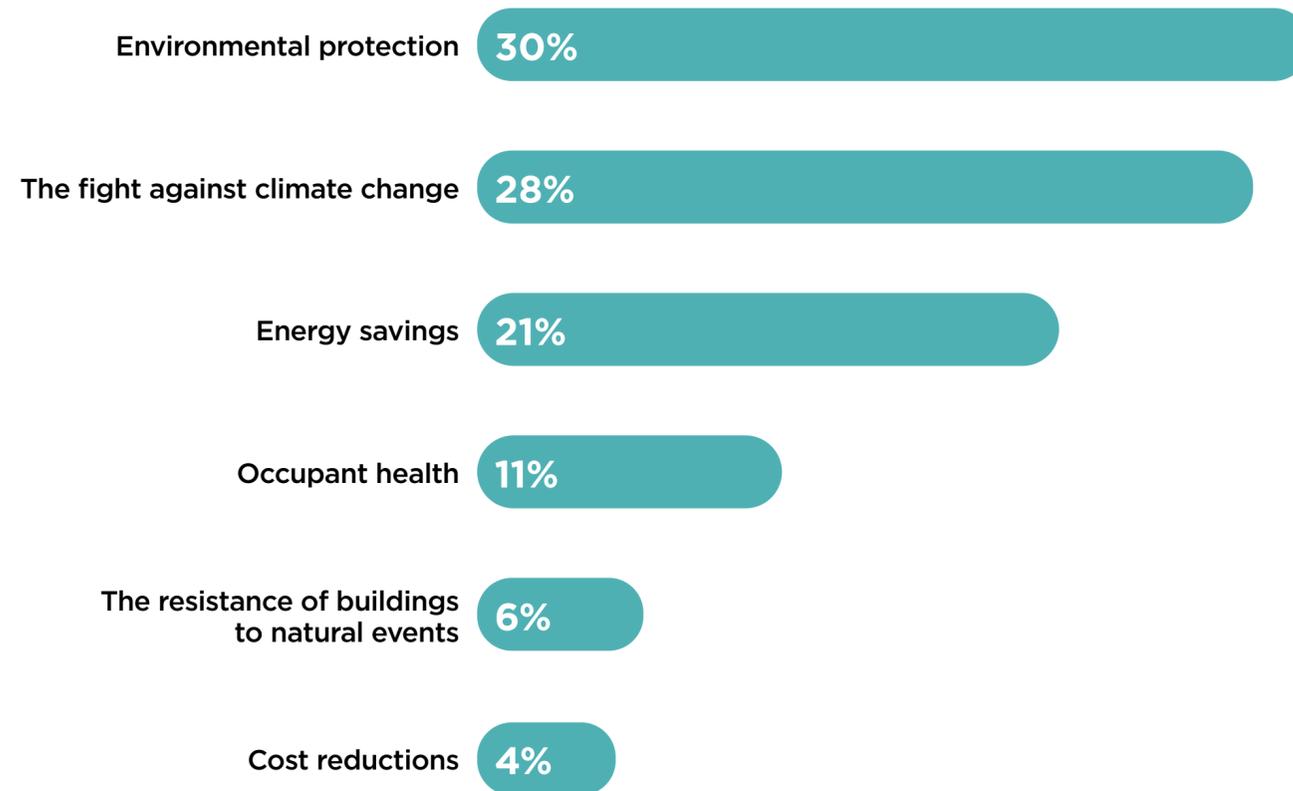
The **reduction of construction site waste** is of more concern to **professionals**, 28% of whom (compared with 20% overall) include this as a definition of sustainable construction.

Sustainable construction combines performance and durability: throughout its life cycle, it contributes positively to the health and well-being of people, has a reduced environmental footprint and delivers superior economic value and quality.

Environment and climate: priority concerns

What do you think should be the main goal of sustainable construction?

All respondents



Base: all respondents (total 802)
Only one answer allowed



Associations are the only category for which the main aim of sustainable construction is the **fight against climate change** (38%). They are also less likely than the average respondent to consider **reducing energy expenditure** as a priority (16% compared with 21% on average). The **militant** discourse is characteristic of associations, which are not content to be “neutral” or to protect, wanting to **act** instead.

Respondents from **Brazil, South Africa and India** are more likely than the average respondent **to consider financial accessibility** the main aim of sustainable construction (8% compared with 2% in Europe). This difference highlights geographically divided practical concerns.

A shared desire for progress

When it comes to sustainable construction, would you say...?

All respondents



Most respondents (89%) think we should now **go further** in terms of sustainable construction.

We need to do more

89%

It's fine the way it is

6%

We need to go backwards

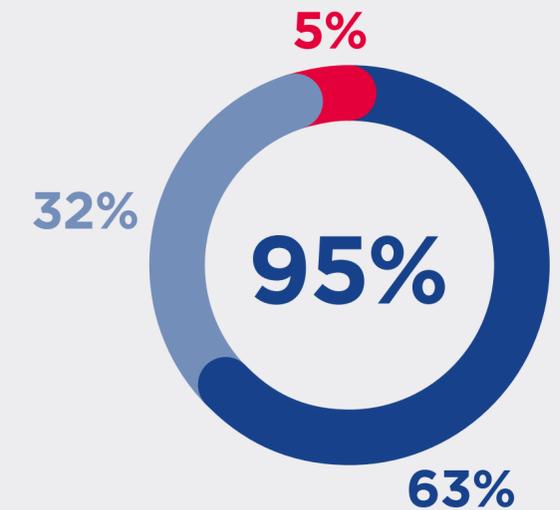
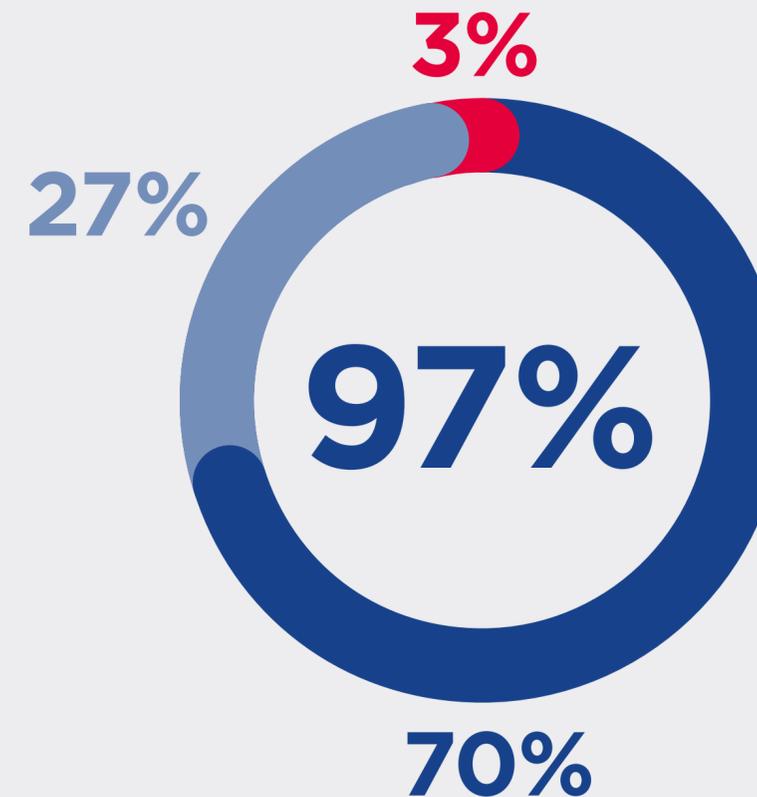
5%

Base: all respondents (total 802)
Only one answer allowed

In your opinion, would you say implementing more sustainable construction is...?

All respondents

Professionals



- A priority
- Important but not a priority
- Of secondary importance



While 70% of all respondents believe that implementing more sustainable construction is a priority, only 63% of **professionals** think so. This may be due to their perception of other constraints in the field, for which finding solutions is a day-to-day priority.

Base: all respondents (total 802)
Only one answer allowed

“Today’s choices are a commitment for the future”



Bernadette CHARLEUX
Head of R&D for Gypsum,
Insulation and Mortars
Saint-Gobain

“A sustainable construction is one that consumes less energy and emits less CO₂ while also using fewer raw materials and encouraging the circular economy. These are the priority features of the concept, but sustainable must also mean fully satisfactory for building users in the long term. It is imperative that sustainable construction, while remaining accessible, ensures quality and comfort.

While a rapid implementation of sustainable construction is required, in our eagerness to be virtuous and meet certain requirements, we must remember that the choices made today are a long-term commitment. With the RE2020 regulation for example, which encourages timber construction and biosourced materials, it is important to think about longer-term, global problems, such as the replenishment of resources. The only effective tool for precisely evaluating the merits of sustainable solutions is third-party life cycle analysis.

Currently, a central focus for R&D is on recycling materials to minimize the extraction of natural resources. In the future, we will also have to generate less waste and find paths for reuse. We must already design products to have two or three lives, not just one, at the manufacturing stage. We must be able to repurpose construction products and systems with a satisfactory level of quality.”

“Many actors are already drivers of sustainability”



Fabrice DIDIER
CEO, Global Architectural
Specialties
Saint-Gobain

“Today, sustainable development in the broadest sense is a shared emergency, an obvious requirement. Most major groups are committed to reducing their CO₂ emissions or even reaching zero carbon by 2050, and governments are accelerating their roadmap strategies.

In the construction sector, there are grounds for optimism: many of the companies involved, beginning with Saint-Gobain, are already driving forward sustainability. The legal and social context could accelerate the process even more, for example by implementing bonuses for eco-friendly purchases; however, industrial and technological change takes a certain amount of time. Adopting sustainable construction while preserving the functionality of buildings means taking the time needed for a serious and profound transformation.

In international terms, France is one of the most advanced countries in sustainable construction, thanks in particular to the attention paid to building standards and sustainability. For example, in France we take account of embodied carbon, which is the CO₂ emitted in producing materials. Conversely, there is still some way to go on materials recycling and recovering resources from building deconstruction.

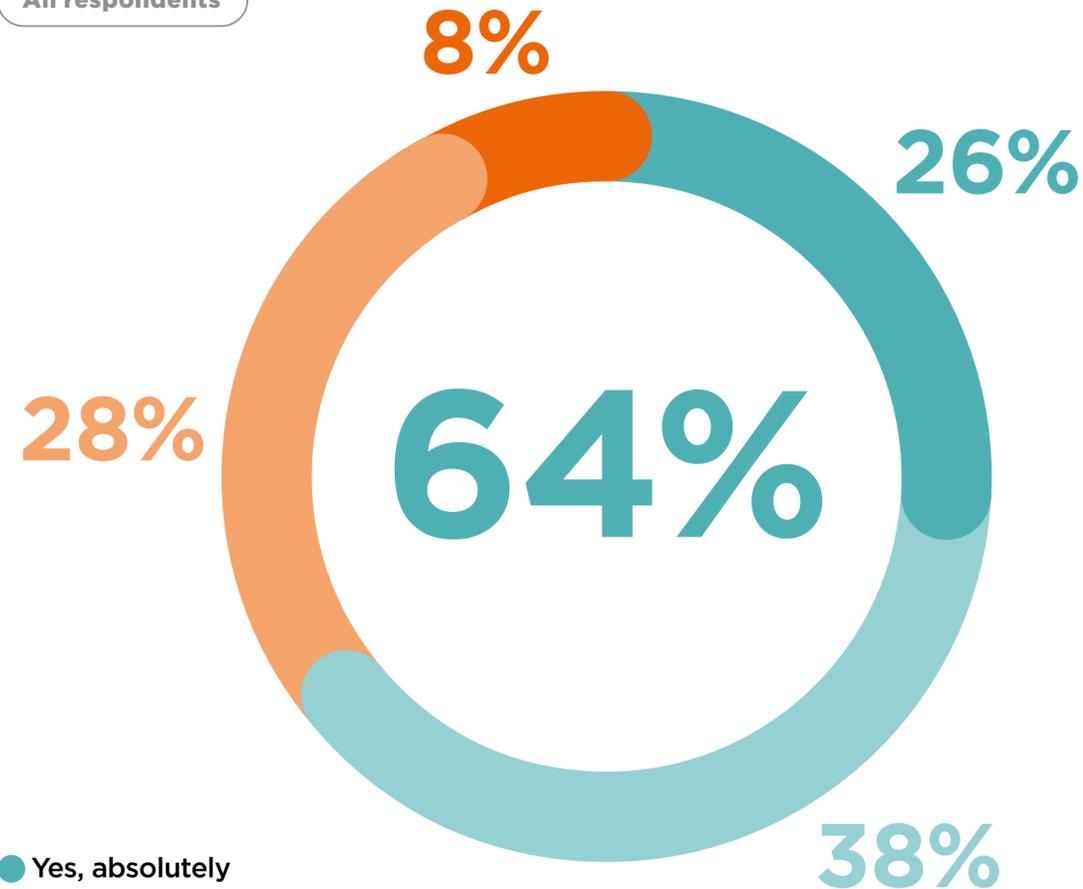
It will be necessary to convince all our customers, especially end customers, that sustainability in the sense of minimizing impacts does not come at the expense of well-being.”



Partially developed understanding in these subject areas

Do you feel sufficiently informed about the subject of sustainable construction?

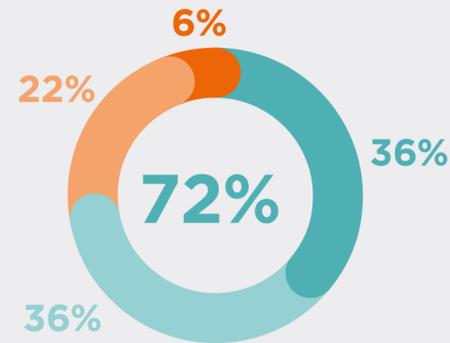
All respondents



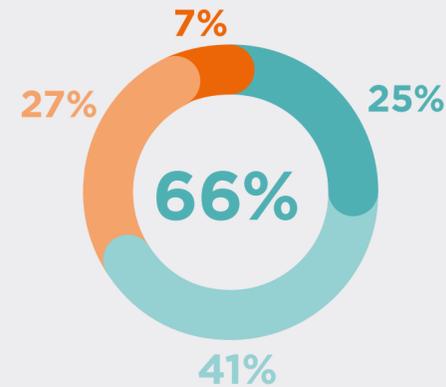
- Yes, absolutely
- Yes, reasonably
- No, not really
- No, not at all

Base: all respondents (total 802)

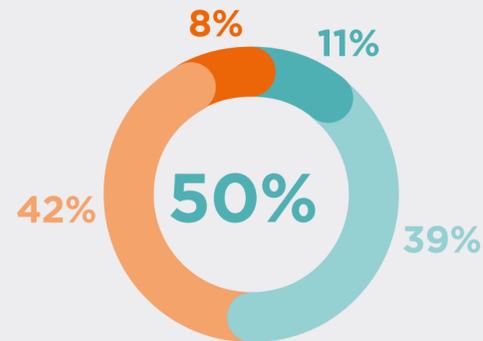
Associations



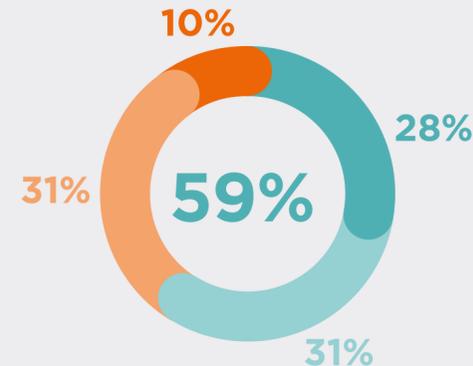
USA, Europe, Japan



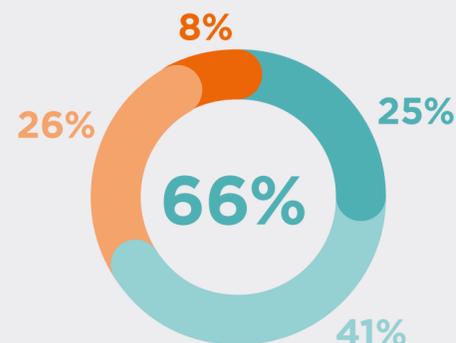
Students



Brazil, South Africa, India



Elected officials



Overall, a real **need for information** emerges: while 64% of respondents say they are reasonably well informed, only 26% consider themselves fully informed.

Geographically, the level of information is lower in **emerging countries**, where only 59% of respondents feel reasonably well informed.

Overall, while **associations are confident**, with 72% of respondents describing themselves as fully informed, only 50% of **students** say they are perfectly well informed, **despite having more training**.

Among **elected officials**, just one in four says they are fully informed.

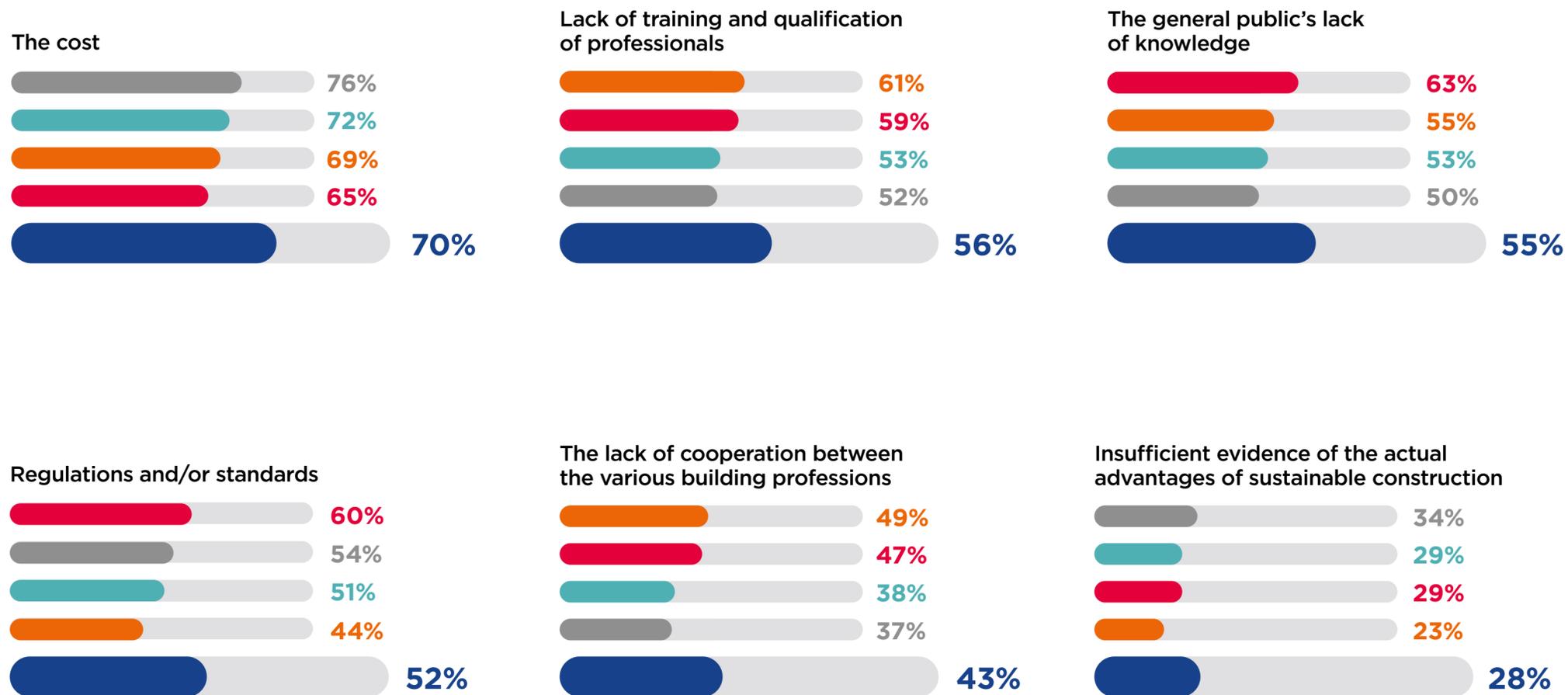


Expanding sustainable construction: obstacles, opportunities and responsibilities



The main issues identified by the industry players...

What do you think is holding back the development of sustainable construction today?



Base: all respondents (total 802)
Several answers allowed

● All respondents ● Professionals ● Students ● Associations ● Elected officials



For 70% of respondents (and 76% of elected officials), **cost** would be the main obstacle to the development of sustainable construction. Conversely, the lack of awareness among the general public and insufficient evidence of the actual advantages of sustainable construction are quoted by 55% and 28% of respondents respectively.

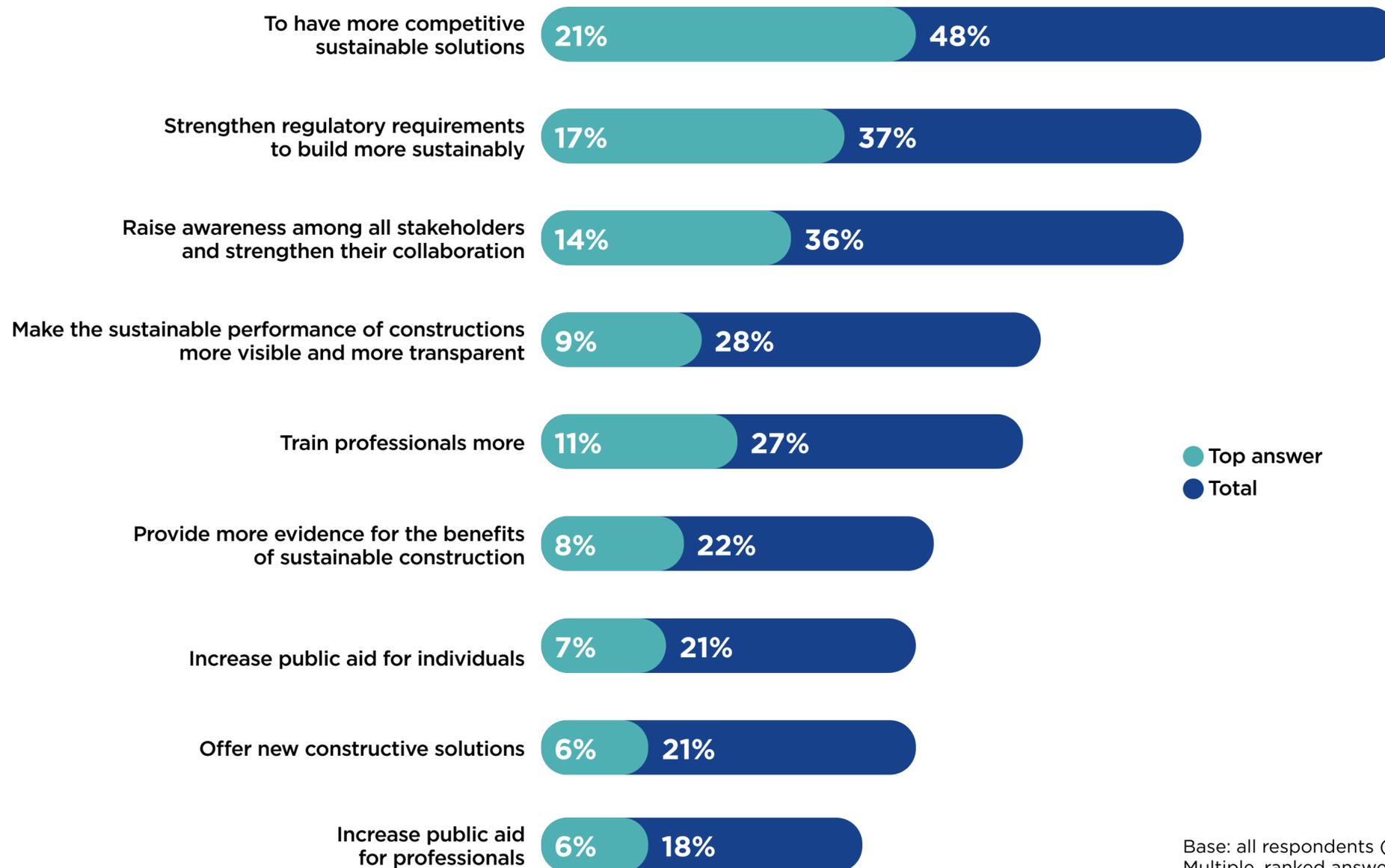
In the coming years, the extensive use of more sustainable construction solutions will reduce their cost, especially by optimizing their industrialization. Taking sustainability into account from the design phase of a project also makes it possible to avoid most of the additional construction costs. It is also necessary to consider all the costs and benefits induced on the whole life cycle (construction, exploitation, renovation, end of life) to make visible the real contributions once the building is built, both economically and in terms of health and well-being.

In developing countries, the main obstacle is the lack of professional training (71%), followed by the lack of public awareness (63%), and the cost (62%).

... and the main levers for acceleration

In your opinion, which of the following actions should be put in place as a priority to accelerate the development of sustainable construction?

All respondents



● Top answer
● Total

Base: all respondents (total 802)
Multiple, ranked answers allowed



On average, the three actions perceived as priorities for accelerating the development of sustainable construction concern materials, regulations, and awareness.

But disparities can be seen between regions:

For example, for 43% of respondents from **emerging countries**, **regulation** is the primary accelerator of sustainable construction (compared with 37% overall).

For 25% of European respondents, **increased state support for individuals** should be implemented as a priority (compared with just 14% of respondents in **emerging countries**).

These results illustrate the phenomenon occurring in sustainable construction: a global challenge that must be met with local responses.

“There is a pronounced dichotomy between European countries and emerging countries”



Othman BENJELLOUN-TOUIMI
CEO
Sub-Saharan Africa
Saint-Gobain



“In sustainable construction, there is a pronounced dichotomy between European countries and emerging countries with rapidly growing populations. In Africa, the urban population will soon represent 70% of the total, probably within a few years. Since the most pressing issue is the creation of a huge volume of decent housing, sustainable construction, which lacks visibility and is largely overlooked in public opinion, is not particularly attractive to project owners.

Nonetheless, some African governments indicate a willingness to force the pace with more rigorous standards, beginning with public buildings. The head offices of major companies or hotels owned by international chains also act as shop windows for innovative, sustainable architectural solutions. Using these buildings as examples, it is possible to encourage the authorities to grasp the issue and sector leaders to bring about change.

Employment, the availability of resources, and the cost of energy will be major arguments in convincing African governments and the entire value chain of the benefits of sustainable construction – arguments that are equally valid in countries such as India or Brazil. In countries with high rates of unemployment, we need to emphasize the inclusive and eminently local value of a construction method that creates regional jobs, and invest in R&D to develop solutions that use predominantly local materials. Sustainable construction could be an essential lever for reducing dependence on resources, reducing energy expenditure, and improving user comfort and well-being.”

“Global progress requires action at different levels depending on the maturity of the country”



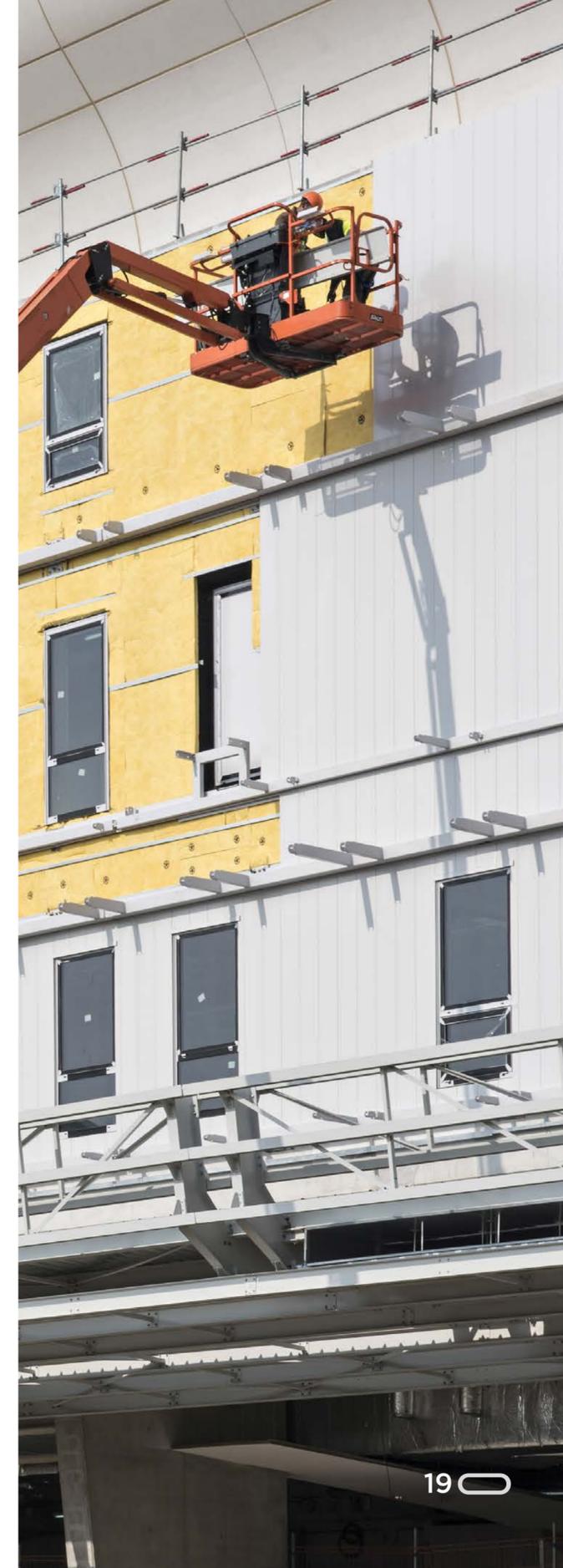
Unnikrishnan AR
Managing Director
Saint-Gobain Glass, India



“Global progress in sustainable construction requires action at different levels depending on the maturity of the country. The first obvious lever would be to decarbonize the sector by using low-embedded-carbon products, improved construction methods requiring less energy, and renewable energy.

The development of sustainable construction would be accelerated by multi-stakeholder organizations setting the standards, objectives and practices; and the government introducing the necessary policy initiatives. The education of engineers, designers and construction professionals would go a long way towards the adoption of sustainable construction practices.

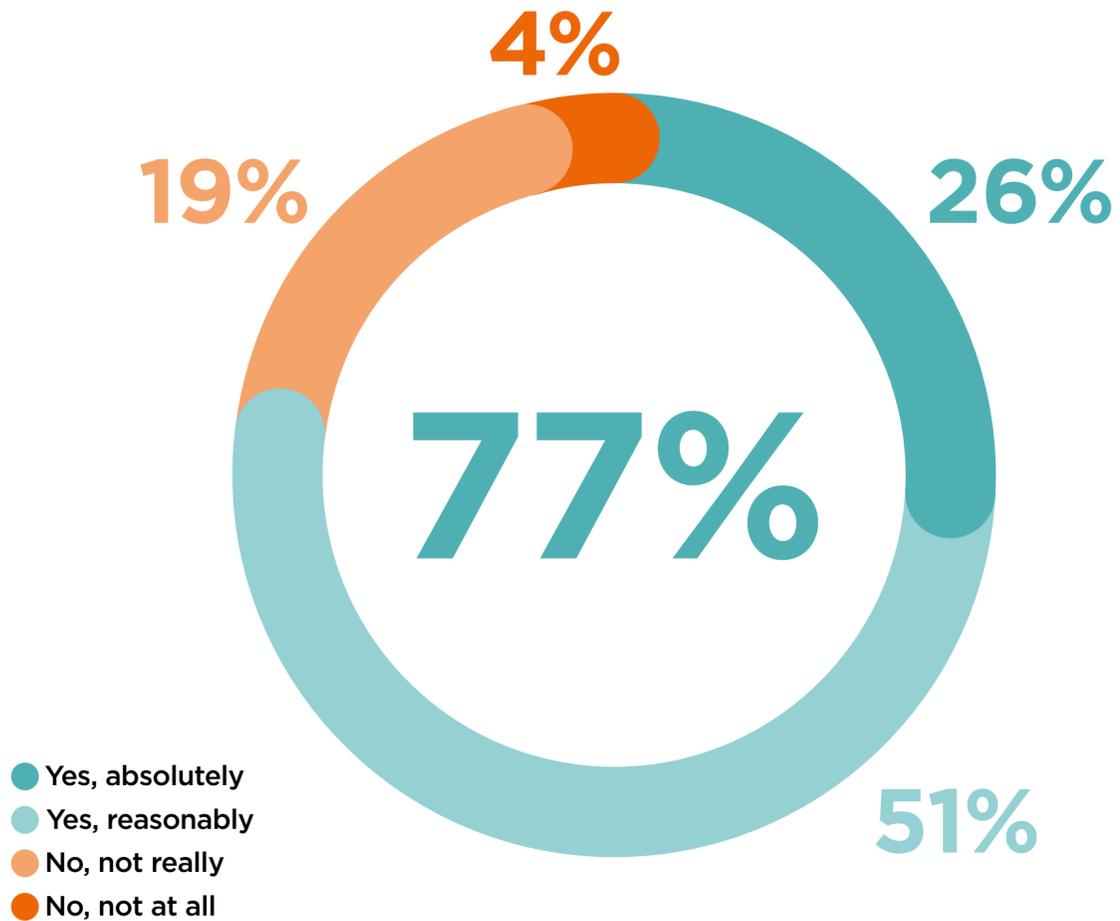
In India, there is good awareness of this aspect among professionals such as architects, consultants, construction companies and contractors, though the end consumers have limited appreciation of its benefits. The country already has over 10 billion sq. ft. of green-certified built space. With more new construction than renovation, urban planning will play a key role in fostering sustainability in India.”



A stronger expectation of innovation in developed countries

Would you personally say that sustainable construction is innovative enough to meet today's challenges?

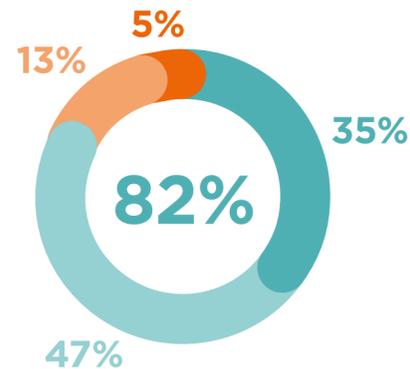
All respondents



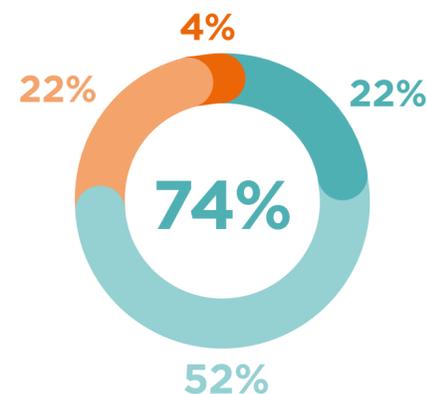
- Yes, absolutely
- Yes, reasonably
- No, not really
- No, not at all

Base: all respondents (total 802)
Only one answer allowed

Brazil, South Africa, India



US, Europe, Japan



Overall, only 26% of respondents think sustainable construction is sufficiently innovative (and only 27% of **professionals**). However, this does not necessarily indicate a glaring lack of innovation, and the issue of sustainable construction does not seem to be about this subject. Rather, these results reflect a consensus among respondents. In other words, the challenges are such that stakeholders in the sector **are ready to innovate even more** to find solutions to meet them.

From a geographical point of view, **emerging countries** are more inclined to view sustainable construction as reasonably innovative.

“We already know how to build lighter, faster and with a lower footprint on the environment”



Joanna CZYNSZ-PIECHOWIAK
CEO
Saint-Gobain Poland



“When it comes to sustainable construction, the knowledge and technology are already available for the most part: we already know how to build lighter, faster and with a lower footprint on the environment and on the consumption of resources. However, beyond improving materials and processes, we need innovation to help us create new channels with customers and engage a wider audience with impactful data. Because, without an awareness of the public opinion and a demonstration of the benefits of sustainable construction, it won't progress fast enough.

In Poland, we strongly believe that prefabricated houses are a segment with a very high growth potential. Today, only 7% of all individual buildings are prefabricated, because it has a bad reputation: there is a cultural belief that light construction is lower in quality. So we are relying on innovation to create a direct relationship with customers and develop this market, thanks to a new tool to be launched this year.

On the app we are designing, customers will be able to choose a model of prefabricated house and customize it, choosing materials and evaluating the associated costs and CO₂ emissions. The app will also act as a platform for producers, banks and companies, helping customers to get governmental subsidies. With this app, we can target young people, Digital Natives, who care about cost, speed and the impact their choices have on the planet. It is with these kinds of solutions, easily duplicated in other countries, that we will empower citizens to advocate for sustainable construction.”

“We must rely on innovation to broaden the spectrum of sustainable construction”



Todd DINOIA
VP Innovation and R&D
Saint-Gobain North America



“In some parts of the world, building techniques and materials do not fully address the need for sustainable construction; therefore, we must convert older technologies to more sustainable solutions through innovation.

To drive innovation and sustainable solutions, building materials companies like Saint-Gobain can lead by example by working collaboratively across the full ecosystem. We are challenging ourselves to be entrepreneurial in our approach through new ventures focused on circular economy, renewable energy (such as solar), and offsite construction techniques, aiming to create innovative solutions that boost sustainable construction.

Although the private sector is expected to function as an enabler, we can accelerate our impact by engaging multiple partners. Startups companies and the AEC community are two partners that play a key role in helping us change our way of thinking and challenge how we build. We also partner with academic universities on longer-term research initiatives regarding alternative low-carbon materials and biomaterials. We are exploring new government incentives and research grants

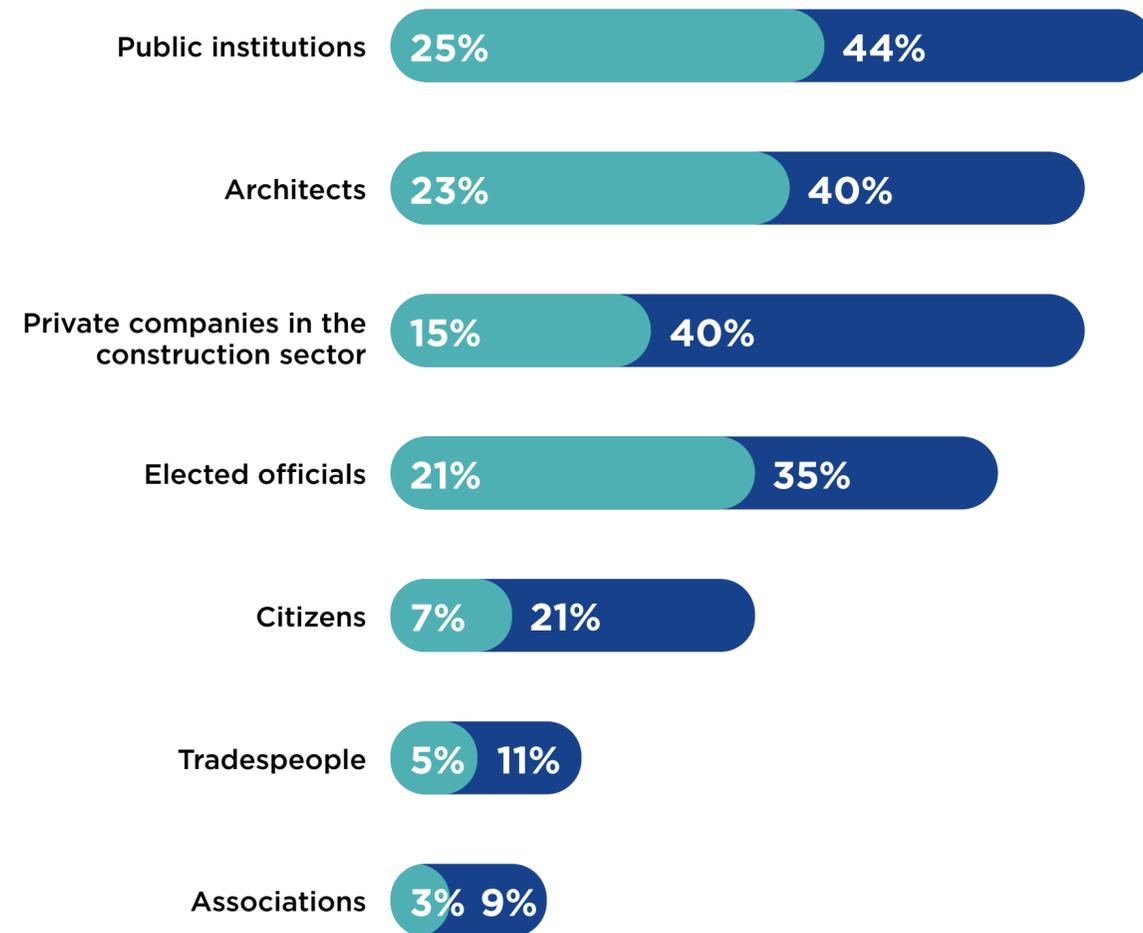
to help reduce the energy and carbon-footprint of production processes, such as gypsum wallboard production. Our purchasing teams work closely with our suppliers to lower the environmental footprint of our raw materials.

Through these combined actions across the full value chain and ecosystem, we believe we can deploy easy-to-apply, more affordable, and more innovative solutions that allow for a broader spectrum of sustainable construction.”

Public decision-makers and architects among the best placed to accelerate sustainable construction

In your opinion, which of the following are best placed to drive forward sustainable construction? Best placed? Second-best placed?

All respondents



Base: all respondents (total 802)
Two ranked answers allowed

● Top answer
● Total



Public decision-makers, whether taken individually via their office or collectively via their institutions, are **those who can and must drive forward sustainable construction** (46% say they are best placed - top answer).

However, for **students**, it is private companies (52%) and architects (51%) that can accelerate the transition toward sustainable construction. Younger generations therefore seem to lack confidence in their elected officials.

In geographical terms, **Europeans** feel that their institutions (55%) are better placed than their elected officials (26%). Conversely, people in **emerging countries** feel that their elected officials (43%) or private companies (45%) are better placed than their institutions (35%).

“The main obstacle comes from fragmentation in the value chain”



Emmanuel NORMANT
Head of Sustainable
Development
Saint-Gobain



“While sustainable construction already represents a significant market, its share of the overall construction market remains relatively small, and its development must be accelerated. It is essential to understand that its growth trajectory reflects different issues in different regions. In developed countries, the priority is to transform the stock of existing buildings and accelerate their renovation so their energy efficiency, comfort and versatility is enhanced. This requires both regulation and ambitious support programs. In developing countries, where the main issue is new buildings, sustainable construction is still extremely limited. To accelerate it will require not only the emergence of leaders but also construction codes that include sustainability criteria (energy efficiency, carbon footprint, circularity, indoor air quality, and thermal and acoustic comfort). To date, only around 60 national codes include these requirements.

But the main obstacle to rolling out sustainable construction comes from fragmentation in the value chain. Unlike the automotive sector, where a dozen major players can transform the market, the world of construction is composed of a few global players plus innumerable local

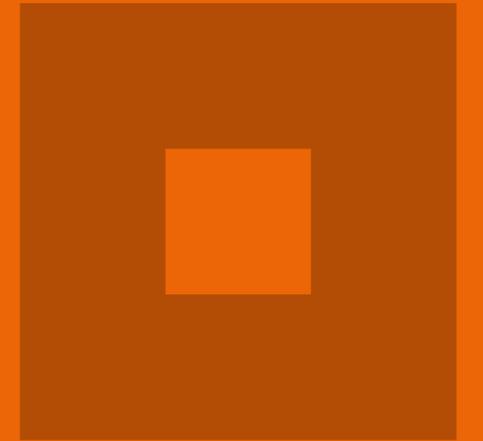
operators, each working on a single link in the chain. This fragmentation accentuates conservatism and makes it more difficult to change practices globally.

New professions in sustainable construction also require more qualifications, which exacerbates the slow rate of change. To transform the entire value chain in a given country, the regulator plays an important role in coordinating and providing impetus. To do so, the regulator must be convinced of the attractiveness and feasibility of sustainable construction solutions, without additional costs, using locally available resources and qualifications.

The international level is essential for convincing regulators and providing a common framework to ensure that all stakeholders are moving in the same direction. This is the aim of major organizations such as the World Green Building Council, with its network of more than 75 local councils, the World Business Council for Sustainable Development, and the Global Alliance for Building and Construction. They will play a fundamental role in the next few years.”



Perception of sustainable construction among opinion leaders in France



Methodology

French market research agency CSA organized **21 interviews** of 30 to 60 minutes each via video conferencing between December 8, 2022 and January 31, 2023.

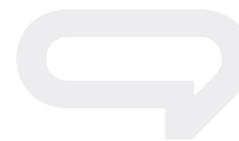
Profiles of the people questioned:

- 6 construction and building professionals
- 5 representatives from professional organizations and associations
- 5 academics
- 3 elected officials
- 2 employees in architectural offices

Sustainable construction: an extremely broad concept

The opinion leaders questioned in this qualitative study confirm this Barometer's overall trends:

Sustainable construction relies on a multitude of stakeholders and processes. It is a balance between ideal and desired visions and what is possible, in a web of constraints primarily linked to purchasing power, regulations, and the priorities of companies and organizations.



“Today, what people want is different from what they consider likely. This is normal for a transition period – there is no consensus like there was in France’s postwar golden years, no certainty.”

(Association)

“Your definition of it will be different as a tenant, owner, or company. Sustainable construction consists of continuous transactions between constraints and feelings.”

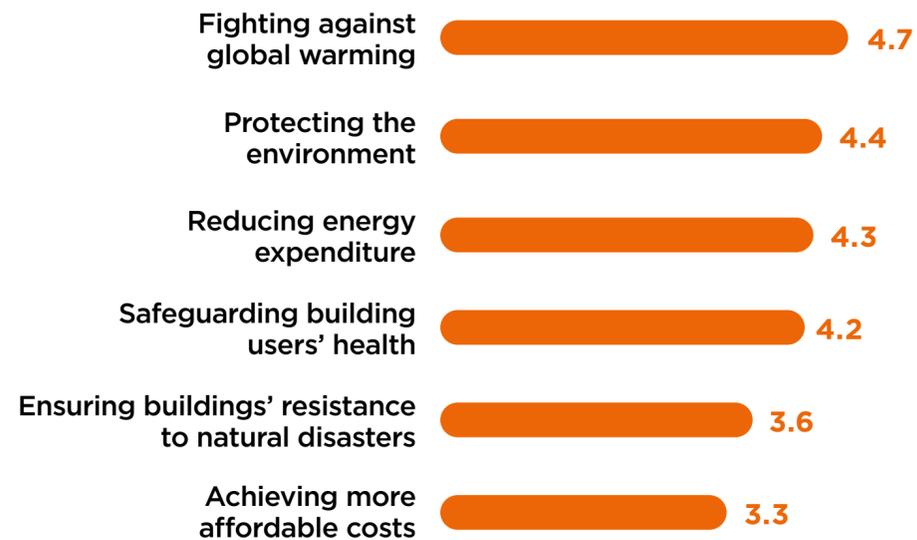
(Academic)



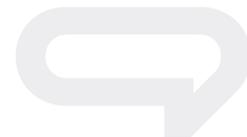
Perception is still associated with the environment, but more nuanced among opinion leaders

For you, what is the main aim to which sustainable construction should contribute?

Score each of these items from 1 to 5 according to what you think is a priority aim for sustainable construction (where 5 = absolute priority and 1 = not important).

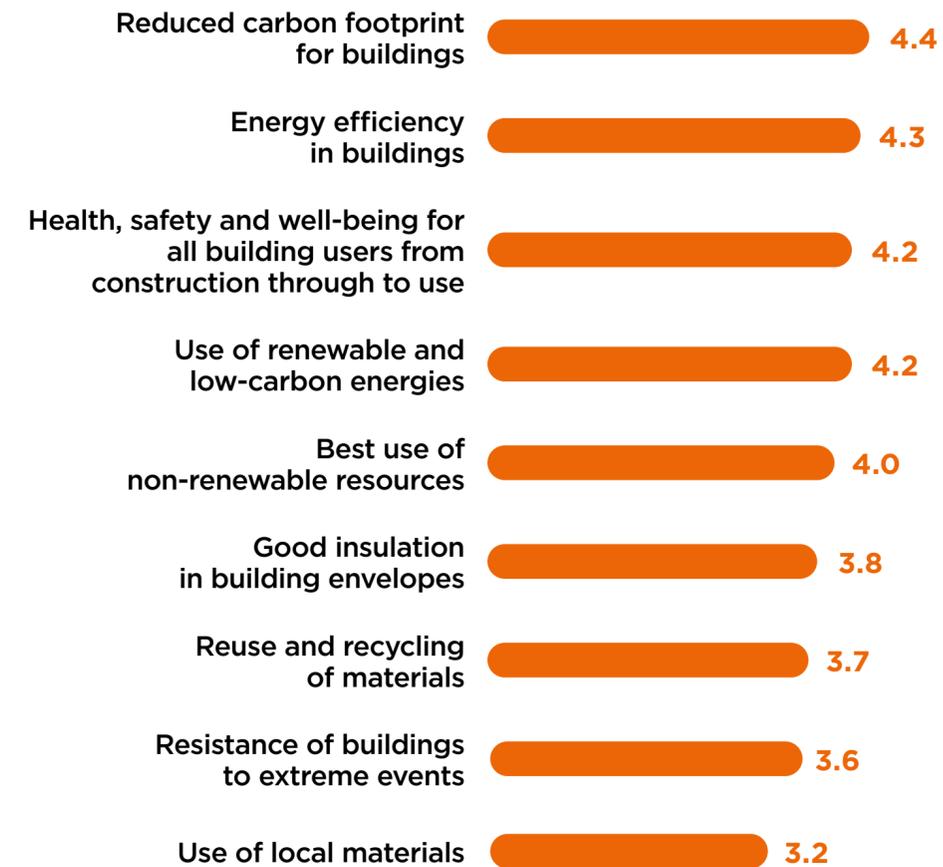


“The main challenge today is the fight against global warming, primarily by limiting greenhouse gas emissions.”
(Professional)



I will list some ideas connected with sustainable construction. In your opinion, which of these can be associated with sustainable construction?

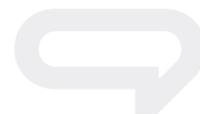
Score each of these items from 1 to 5 according to whether you think it defines sustainable construction (where 5 = very good definition and 1 = not at all applicable).



“They are all part of it. The ecological approach is always about ‘and’ - it’s never about ‘or’.”
(Architectural office)

Sustainable construction is also about renovation

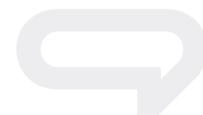
Behind the concept of sustainable construction lies the question of renovating existing stock, which is considered necessary to achieving carbon neutrality but also far more complicated than new construction. This is considered an important, even major, issue, especially for poorly insulated buildings.



“Above all, we have inherited a stock of very poorly insulated buildings from the 1970s and 1980s, when energy was considered inexpensive and abundant... The problem is not necessarily new construction so much as the existing building stock.”

(Association)

In sectoral terms, a repositioning is also necessary, because the sector will struggle to achieve a zero-carbon objective while continuing to build, especially in a framework that limits new construction (NZA [Net Zero Artificialization] Law).



“The people who know how to create new buildings don't necessarily know how to renovate, which is a whole different ball game... We campaign for construction specialists, especially house builders, to focus more on renovating existing buildings.”

(Association)

Several obstacles hinder renovation projects:

1. The finance and home-ownership model does not encourage renovation.

“We haven't put ourselves in a position where you can invest in renovation like you can in new builds, with banks that would allow you to renovate as easily as to buy.”

(Association)

2. It is expensive to renovate buildings that were not designed for this.

“We are in the process of renovating priority housing, and, when the building was not made to last in the first place, it costs more to renovate.”

(Elected official)

3. Renovation requires different, often more technical, skill sets than new construction.

“With renovation, the issue is finding enough tradespeople... Renovations currently cost too much and take too long due to a lack of qualified people to do the work.”

(Association)

4. The requirement for professionals working on an energy renovation project to be RGE⁽¹⁾ certified (unlike in new construction) complicates matters for constructors who build new.

“We are currently being held back because, for a comprehensive renovation project, all our subcontractors have to be RGE... That isn't the case in the new-build market, and it doesn't matter there because we bear the responsibility and provide the guarantees for the end customer.”

(Professional)

(1) According to the France Renov' organization, RGE (Recognized Environmental Guarantee) certification is awarded by the public authorities and ADEME to professionals in the building and renewable energy sectors who demonstrate a commitment to quality.

Major challenges to promote sustainable construction

Communication / education

“We need to train politicians and the local authority managers in charge of buildings, from top to bottom... I’m not talking about carpenters or bricklayers... We must introduce teaching resources to explain what we mean by sustainable, sobriety and CSR...”
(Academic)

Industrialization

“We must industrialize and create economies of scale in construction processes...”
(Association)

Resources

“70% of a building’s impact occurs during its construction, and 56% of that is down to the choice of materials... Our role is to specify these materials. Sustainable construction means building with the right materials... And the right material is what works for the project, not necessarily reused material... We have to choose the right materials to recycle or recondition.”
(Architectural office)



Regulations / legal

“We need to get everyone around the table to generate the will to move forward, and not just say ‘I don’t know if the inspection office will support me’.”
(Professional)

Skill sets (construction and renovation)

“We have to develop new skill sets for the entire sector: companies, architects, public-sector contractors, tradespeople...”
(Professional)

Innovation and R&D

“We must continue to find solutions. This requires producers of materials to put in the effort at the beginning of the chain... And we must keep sight of use hybridization, that is different uses for the same building during the week: constructing fewer square meters, but constructing so that offices can become stores at the weekend, for example... There must be a rethink.”
(Professional)

Collaboration / pooling

“There are thousands of people involved in construction training who never meet and haven’t understood the benefit of the collective, for professional decision-makers and project owners alike... We need to get everyone around the table, because currently, everyone is scattered.”
(Academic)



Construction professionals leading the effort

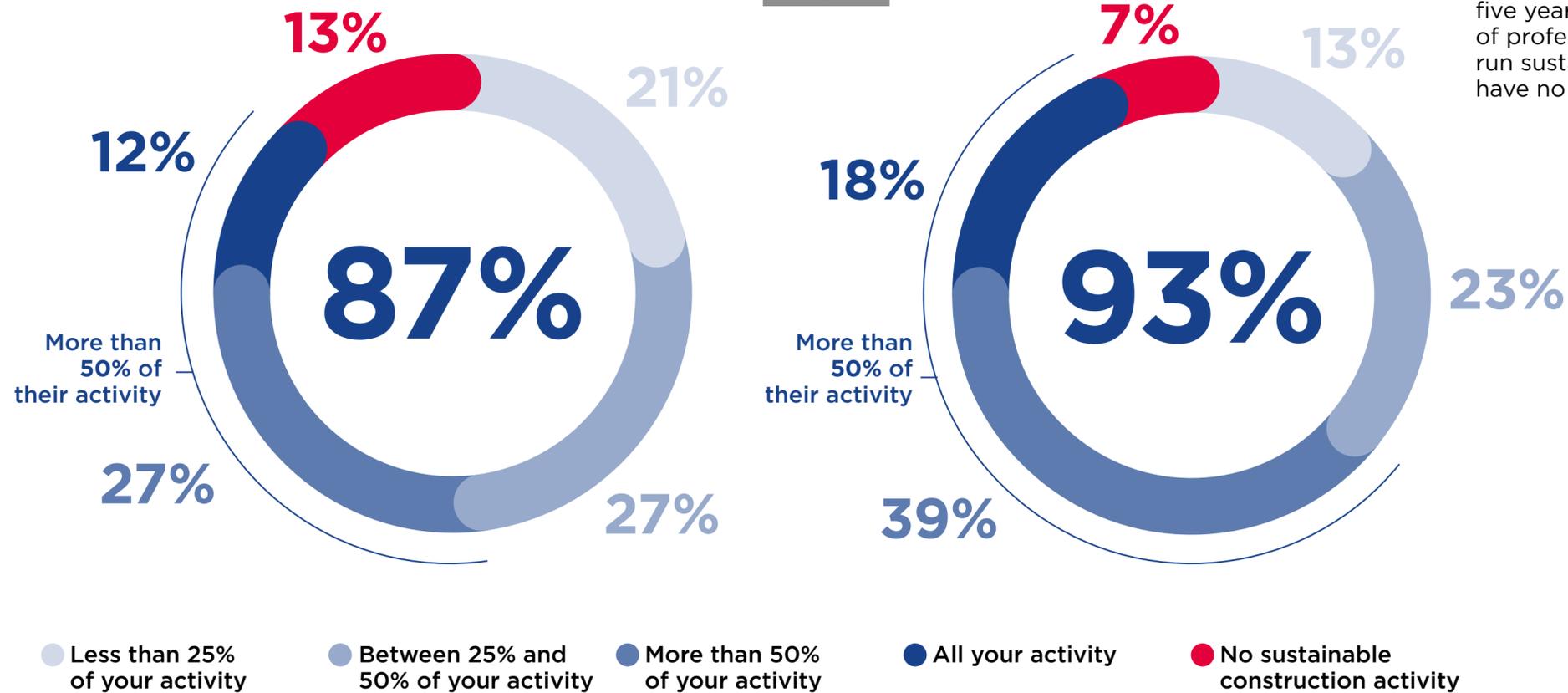
Professionals are already actively involved and aware of the progress needed

Does all or part of your activity fall under the heading of sustainable construction? And in the next five years?

Professionals

Currently

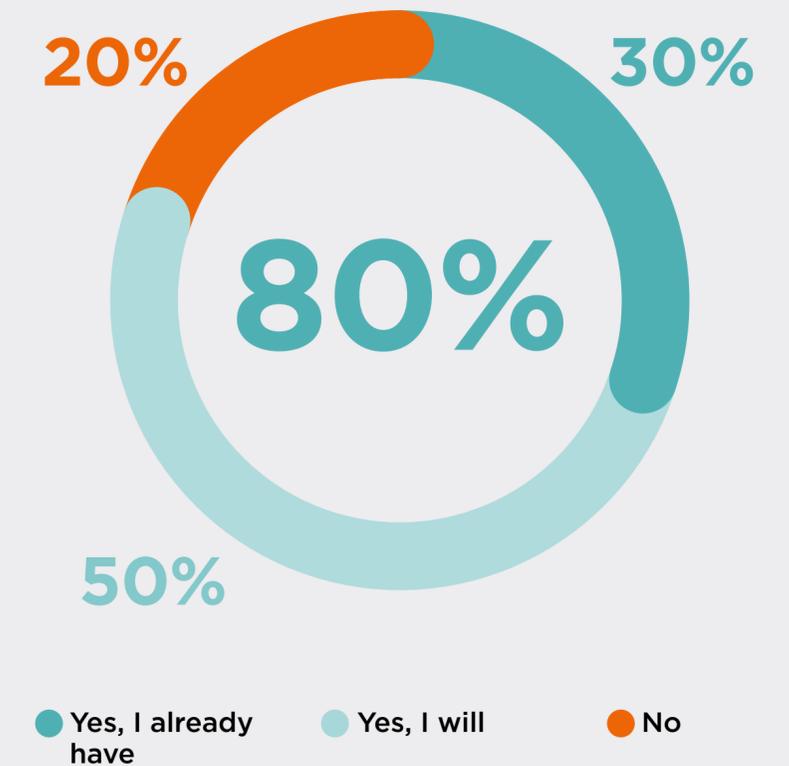
In the next five years



While nine out of ten professionals already have sustainable construction activities, and there is a strong wish to increase this, only 18% say they are ready to bring **all their activity** under the heading of sustainable construction in the next five years. Additionally, 20% of professionals have never run sustainable projects and have no plans to do so.

Would you personally implement more projects with a focus on sustainable construction, regardless of the impact in terms of development time, supply of materials, and margins?

Professionals



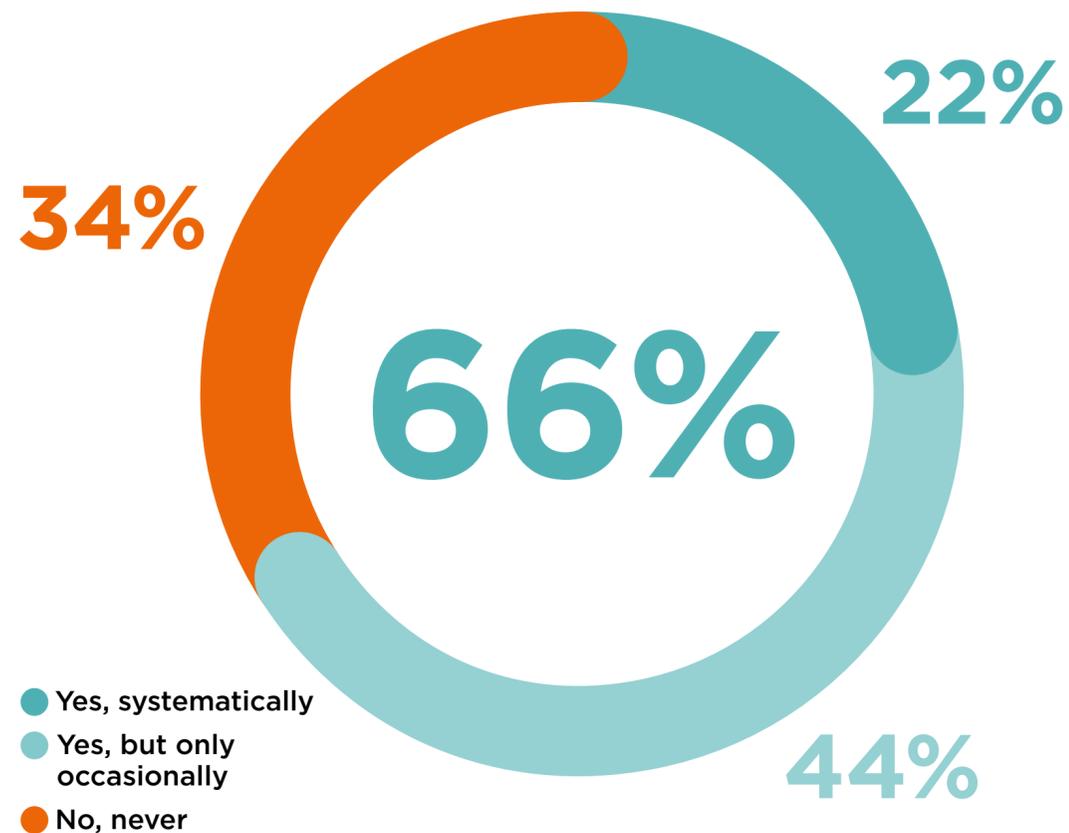
Base: professionals (total 201)
Only one answer allowed

Base: professionals (total 201)
Only one answer allowed

Carbon footprint measurement remains limited but is leading many to act

Do you evaluate the carbon footprint of your sustainable construction projects?

Professionals



↑ A not-insignificant proportion of construction professionals (34%) **do not calculate the carbon footprint** for their projects, and only 22% say they do so routinely. It is therefore not yet an automatic reflex for professionals.

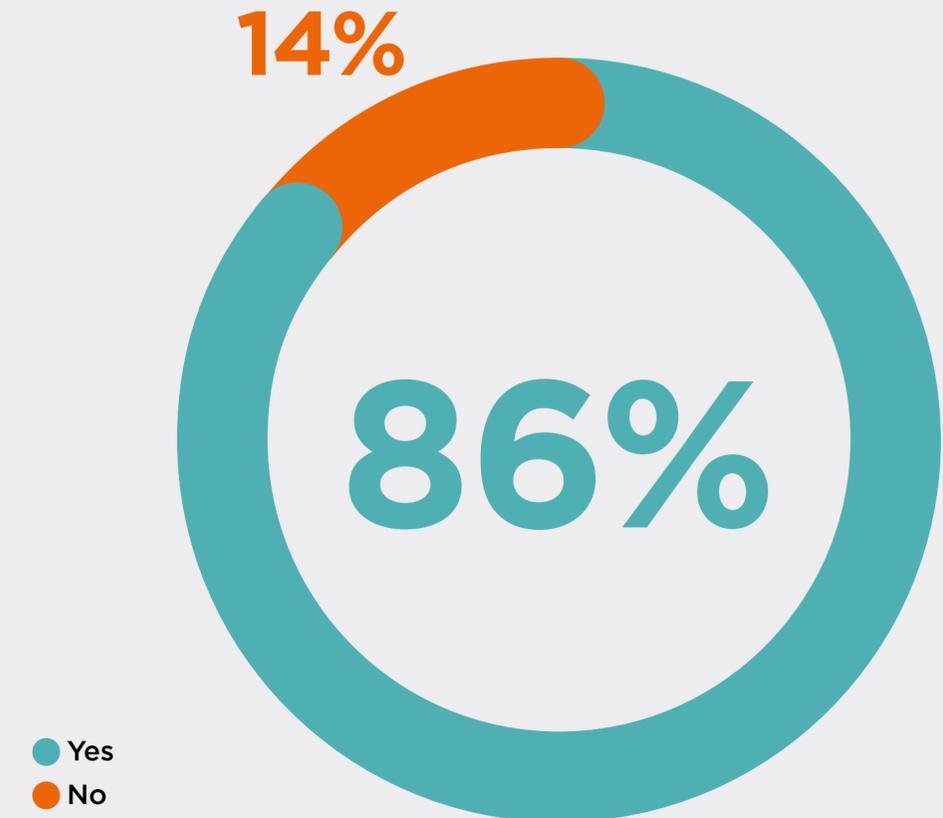
However, for 86% of those who do evaluate their carbon footprint, this evaluation empowers them to **implement measures to reduce it**. This is therefore a fundamental lever for accelerating decarbonization in construction projects.

Additionally, this evaluation also forms part of the **evidence in support** of sustainable construction, helping to convince the professionals who create buildings and the users who buy them, and globally impacting the entire sector, which needs to offer ever-lower-carbon solutions.

Base: professionals with sustainable construction activity (total 176)
Only one answer allowed

Does this evaluation allow you to take action to reduce your carbon footprint?

Professionals



Base: professionals who evaluate the carbon footprint for their sustainable construction projects (total 116)
Only one answer allowed

“Data is a real opportunity”



Josefin BYQVIST
Nordic & Baltics
Sustainability Lead
Saint-Gobain



“When it comes to sustainable construction, the Nordic countries are at the forefront. Public opinion is mature on these issues, and regulations are advanced, especially since the adoption of a climate declaration setting limited values for the carbon footprint and energy efficiency of buildings.

Data is a real opportunity for the development of sustainable construction. It allows us to make direct comparisons between the different existing solutions, and thus provide tangible evidence of the real benefits of sustainable construction. Their use could lead to the introduction of labels to classify products according to their environmental impact. Saint-Gobain has been committed for several years to the development of environmental product declarations (EPDs), and is advocating for the acceleration of their global availability.

As data is so essential, it is also a question of controlling its collection, interpretation and sharing. In this regard, we are seeing new companies appearing rapidly that can process and analyze it. In Norway, for example, a national database is being built. In Sweden, there is no national initiative, but a private company that handles this type of data. Besides, the calculation of CO₂ emissions is today mainly done with start-ups. They have a key role to play in helping large groups to progress in this field. The competition created by their emergence is also a good thing, because we are pushing each other to improve rapidly. This acceleration will be key if we are to meet our governments’ carbon neutrality commitments.”

“We need to be thinking in terms of a solution’s total impacts”



Olivier SERVANT
Head of Construction
Solutions France
Saint-Gobain



“To accelerate sustainable construction, one of the fundamental levers is the objective evaluation of the impact that construction activities have. Many of those involved still have an overly segmented approach to this impact, only assessing CO₂ emissions, or even only CO₂ emissions linked to materials production. We need to be thinking in terms of a solution’s total impacts, for all its environmental impacts and not just CO₂ emissions, both in relation to the product itself - its manufacture, implementation, use and end of life, and its impact on the building.

For example, implementing insulation solutions during the thermal renovation of a building intermittently increases its carbon weight by a small amount. On the other hand, in less than three months, the carbon weight of the insulation is offset by the greenhouse gas emissions avoided through energy savings. Since insulation solutions are effective for several decades, it is essential to include this “carbon return time” at building scale to promote the best-performing solutions.

Construction firms must emphasize their efforts to avoid being confined to weak claims about the overall impact of their products and solutions. At Saint-Gobain in France, this involves the publication of environmental and health declaration sheets (FDES) for its products. These are created both for existing products and when launching a new system or solution. They are verified by an independent third party and are publicly accessible in the INIES database⁽¹⁾.

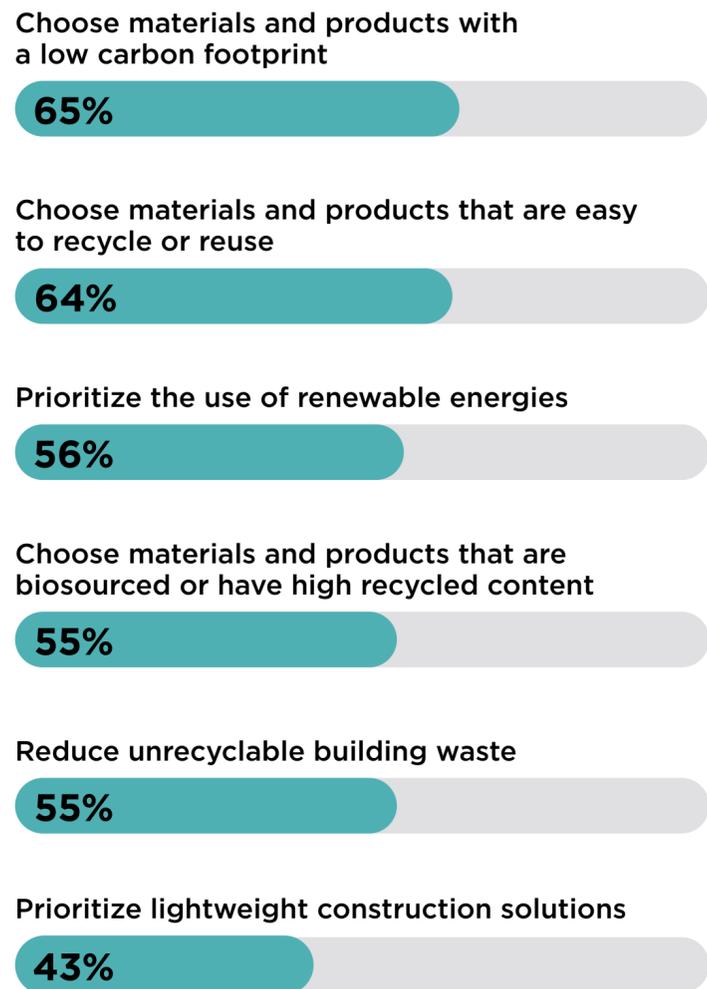
The whole sector needs to be exemplary with regard to information and verification of the products it brings to market and of their impact. This is a major challenge in terms of transparency and optimization. Through the factual demonstration of sustainable construction’s benefits and by creating a training effect for every stakeholder (public and private) in the value chain, we can truly transform the building sector.”

(1) French national database of environmental and health reference data for construction products and equipments.

Materials at the heart of decarbonization

What actions does this evaluation of your carbon footprint enable you to implement?

Professionals

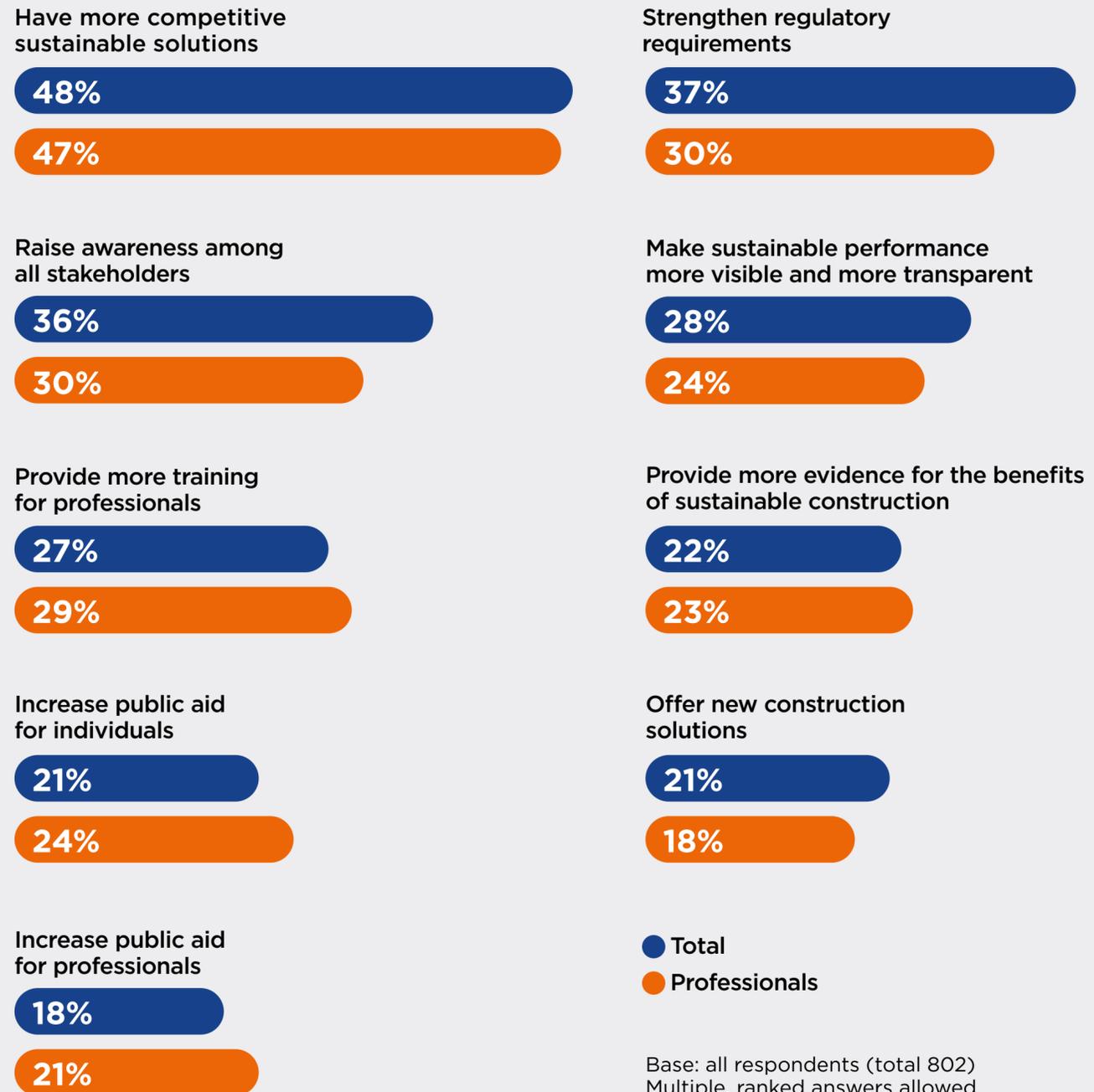


Among the solutions for decarbonizing construction, professionals perceive action on **materials** as crucial. They have a fairly detailed understanding of the existing levers: carbon footprint, reuse, recycled content... Only weight remains in second place (43%), yet reducing it has a direct impact on CO₂ emissions related to construction.

Base: professionals who think that evaluating their carbon footprint enables them to implement actions to reduce it (total 100)
Several answers allowed

In your opinion, of the following actions, which should be made a priority to accelerate the development of sustainable construction?

All respondents



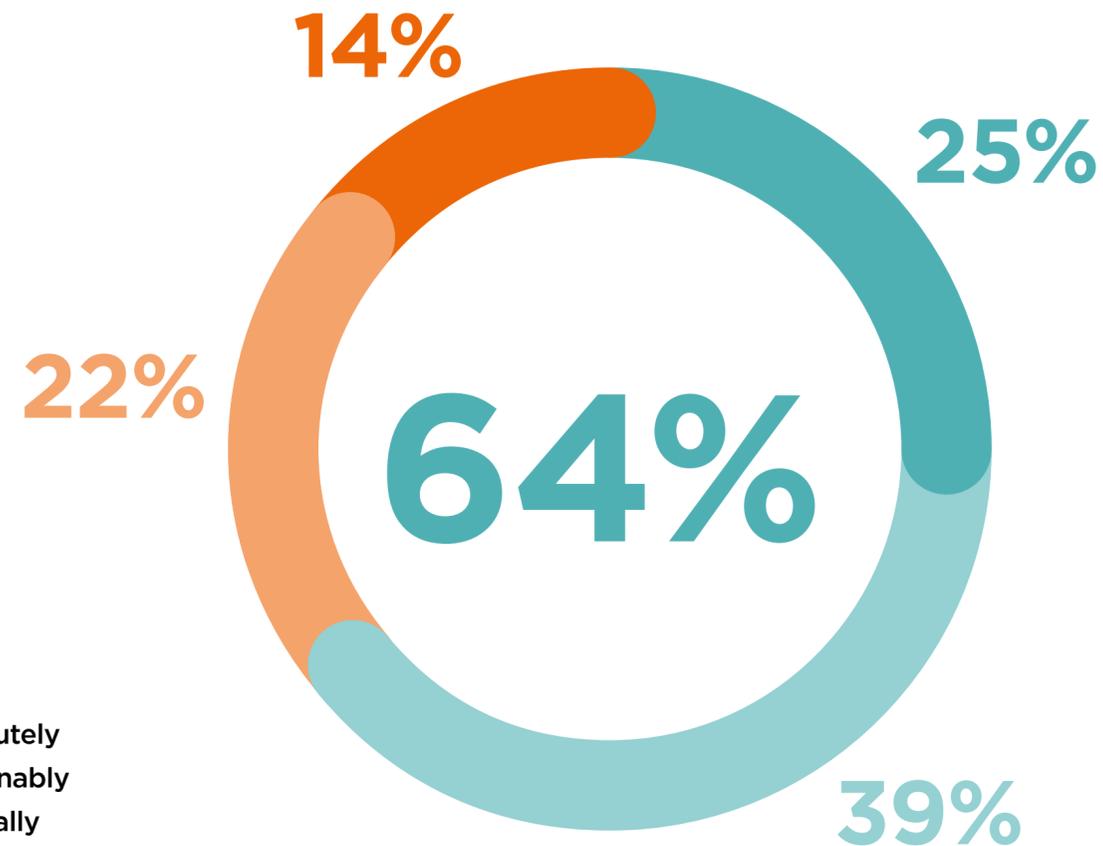
● Total
● Professionals

Base: all respondents (total 802)
Multiple, ranked answers allowed

Suppliers and partners are still rarely evaluated

Is the commitment of your suppliers and partners to sustainable construction a selection criterion for you?

Professionals



- Yes, absolutely
- Yes, reasonably
- No, not really
- No, not at all

Base: professionals (total 201)
Only one answer allowed



The **coordination required** between participants in the value chain to effectively push forward sustainable construction is a key element insufficiently taken into account by professionals.

For 36% of them, sustainable construction is not a factor in supplier and partner selection.

However, consideration of **Scope 3** CO₂ emissions (not directly linked to manufacturing, but to every stage of the product life cycle, e.g. transport) is essential to any attempt to decarbonize their activity.

Scope 1

Greenhouse gas emissions generated directly by the company from owned or controlled assets. For example, emissions linked to fuel combustion in boilers, vehicles or furnaces.

Scope 2

Indirect emissions generated during the production of the energy that a company purchases.

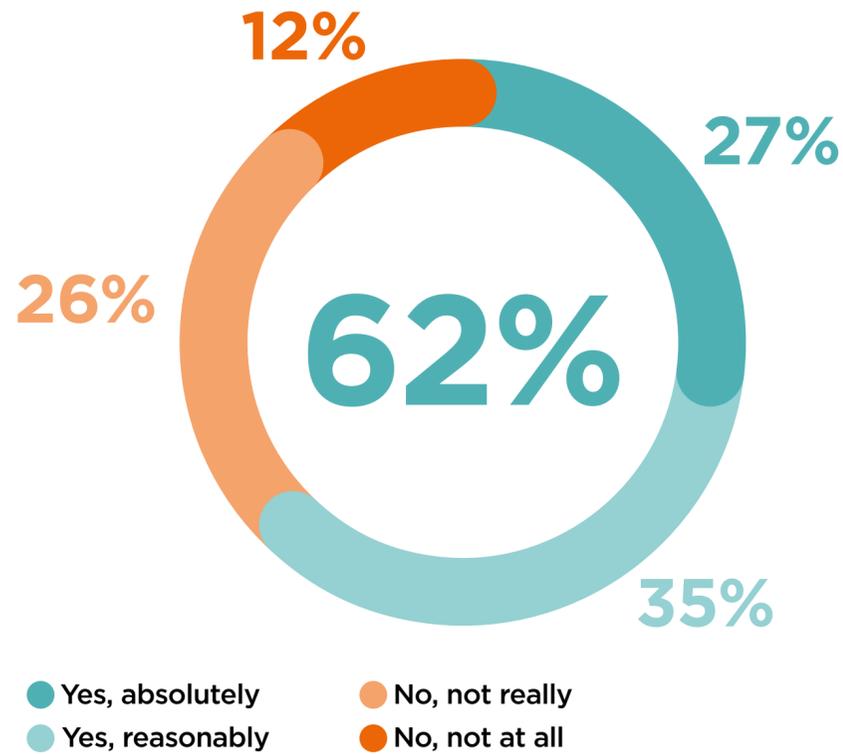
Scope 3

All indirect emissions – not already included in scope 2 – that occur in the company's value chain, both upstream and downstream.

Training needs to be expanded

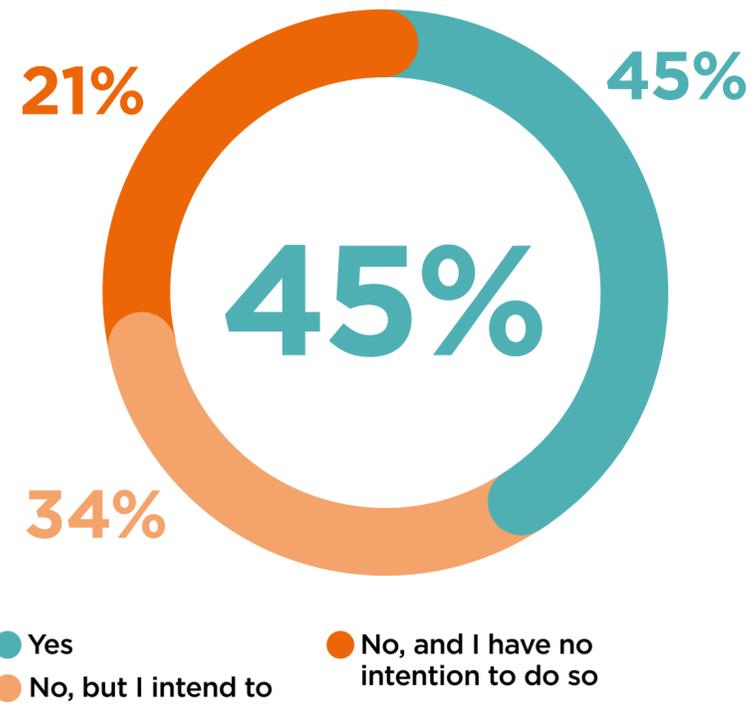
Do you feel sufficiently trained about the subject of sustainable construction?

Professionals



Have you been trained in sustainable construction?

Professionals



Base: professionals aware of the sustainable construction concept (total 170)
Only one answer allowed



To go further, there is still a **need for training** for professionals, with 38% saying that they are not adequately trained. In fact, 55% have not received **any training** in this area, while 21% **do not intend** to access training for the moment.

“Educating the entire value chain will be crucial for bringing about change”



Marco CORRALES
CEO of Saint-Gobain Mexico, Colombia, Venezuela, Ecuador and Central America



“In recent years, there has been a realization that has led to accelerated efforts in the area of sustainable construction, thanks to several converging factors: evolving construction methods, increased awareness among new generations, financial markets’ alignment on ESG issues, etc.

But development of sustainable construction is still sluggish in Latin America due to a combination of cultural, economic and political factors. Public opinion generally associates lightweight and sustainable construction with higher costs and a degree of fragility. While architects know that sustainable solutions are better, constructors and investors continue to favor traditional materials. Consumption of plasterboard, which is one indicator of this lightweight, sustainable construction, is approximately 0.5 square meter per person per year in Mexico, compared with around 8 square meters in the United States. The public authorities encourage certifications, but are not going so far as to implement tax incentives or adequate legal constraints.

Educating the entire value chain – tradespeople, architects, manufacturers – about sustainable construction will be crucial for bringing about change. It is essential to create and roll out training courses, adapted to local issues, that concretely demonstrate the benefits of sustainable solutions, especially in terms of comfort and reduced energy consumption. This is a long-term task, but one that will have a major impact.”



“There is no single message that can be replicated for everyone”



Cordula GUDDUSCHAT
VP Marketing
and Development
Saint-Gobain



“Today, to address the idea of sustainable construction as a process of constant progress, there is no single message that can be replicated for every customer and country. In the least mature markets, for example, we must develop a highly detailed level of discourse connected with local issues that demonstrates the benefits of sustainable construction in a tangible way, for example in terms of resource consumption or energy performance. In other words, promoting sustainable construction only makes sense if it positions the discourse at the appropriate level in regard to local realities. The aim is not to align the entire world, but to do what is best everywhere according to each place’s starting point.

To demonstrate that sustainable construction is not more costly than traditional construction methods, especially taken over the entire life cycle, we need to interact with worldwide

partners (such as the World Green Building Council), and major construction and real estate companies. Then, armed with this global vision, we must approach the public authorities about strengthening regulations, as has already been done with thermal performance in buildings.

Sustainable construction is about more than reducing our industrial carbon footprint, it is a question of the overall impact. Marketing must ensure that every aspect of sustainability is taken into consideration – we always talk about the impact on “People” and impact on the “Planet.” In “People” terms, for example, sustainable construction can have a positive impact on health for the people who apply our products, or the occupants of a building. Our marketing must ensure that the sustainable solutions on offer meet the market’s real needs.”



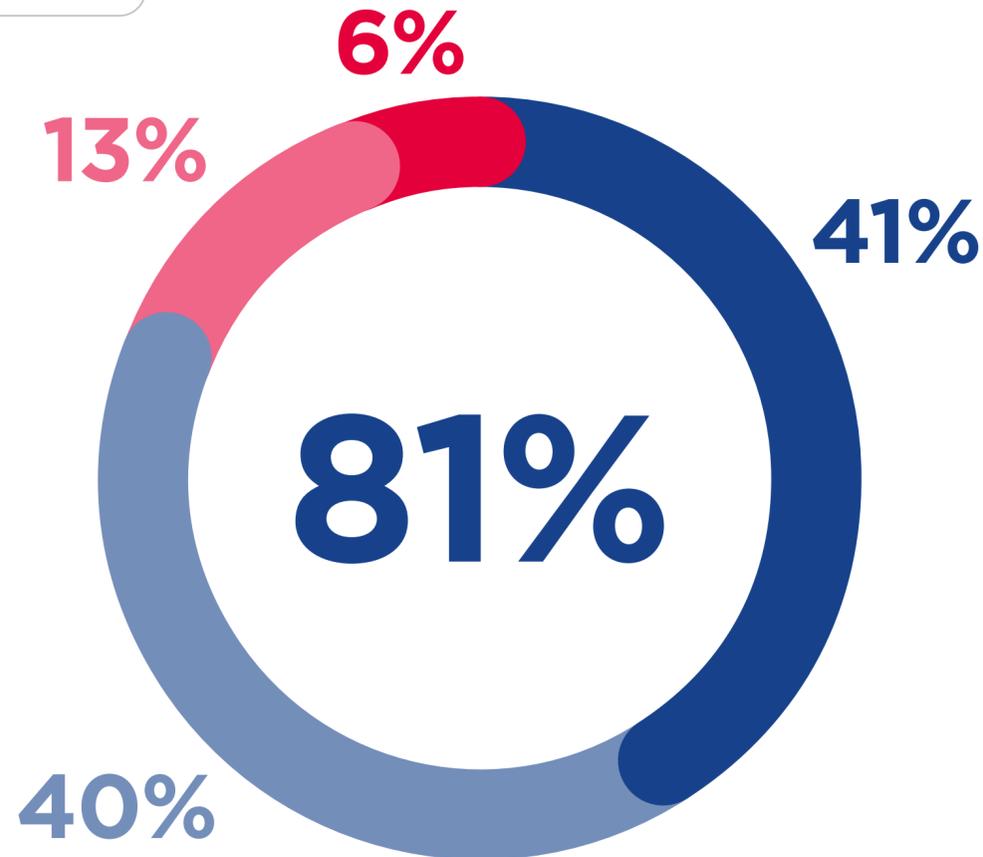
Beyond the construction sector: commitments have yet to translate into actions



Sustainable construction is an important but not exclusive selection criterion for elected officials

As an elected official, in relation to construction projects, is sustainability currently an important or unimportant factor when awarding public contracts?

Elected officials



- Very important
- Fairly important
- Not really important
- Not at all important

The main course of action open to elected officials is to exclude projects with no regard for sustainable construction from public procurement.

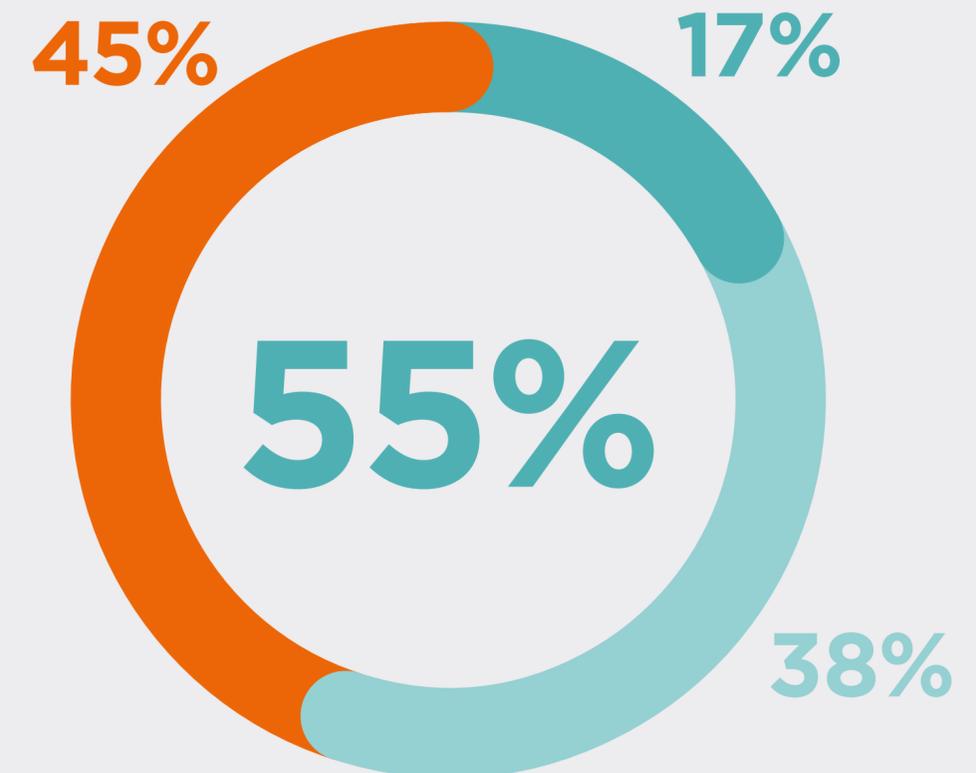
For 81%, the sustainable dimension of a project is an important factor (with 41% considering it very important).

But in reality, only 17% have previously rejected a non-sustainable project.

Base: elected officials (total 199)
Only one answer allowed

Would you personally reject public procurement construction/building projects that did not consider sustainable construction methods?

Elected officials



- Yes, I have done so
- Yes, I will
- No

Base: elected officials (total 199)
Only one answer allowed

“To advance to industrial scale, the role of the public authorities is essential”



Julie BONAMY
CEO of Saint-Gobain
Canada



“The construction sector is often overlooked when talking about climate change. People more often think about fossil fuels, flying, cars, etc. But sustainable construction is essential in two ways: it allows a massive reduction in CO₂ emissions and provides the greatest number of people with better living conditions. It should therefore be at the highest level in public discourse.

It isn't currently about doing less - the needs are immense - but about doing better, and we know how to do that! The main obstacles to developing sustainable construction are not technical in nature. They are linked on one hand with the culture and our relationship with the built environment, and, on the other, with the lack of government incentives.

In North America, individual construction is structurally lightweight, but awareness of sustainable development issues is very uneven. Without government incentives, the benefits of investing more for sustainable construction remain weak. Because, even though it makes a lot of sense economically over a building's total life cycle, it often makes less sense for the decision-makers in the value chain.

To advance to industrial scale, the role of the public authorities is essential. A new zero-carbon plasterboard plant is set to open in Montreal, with support from the Government of Quebec. In our plasterboard plant in Vancouver, we received support from the province to switch out the air renewal systems in our dryer in order to reduce energy expenditure. However, there are large disparities between the different Canadian provinces. Although sustainable construction is starting to be a consideration in some markets, especially top-end residential, there is still significant demonstration work to be done to promote the advantages of low-carbon solutions and circularity.

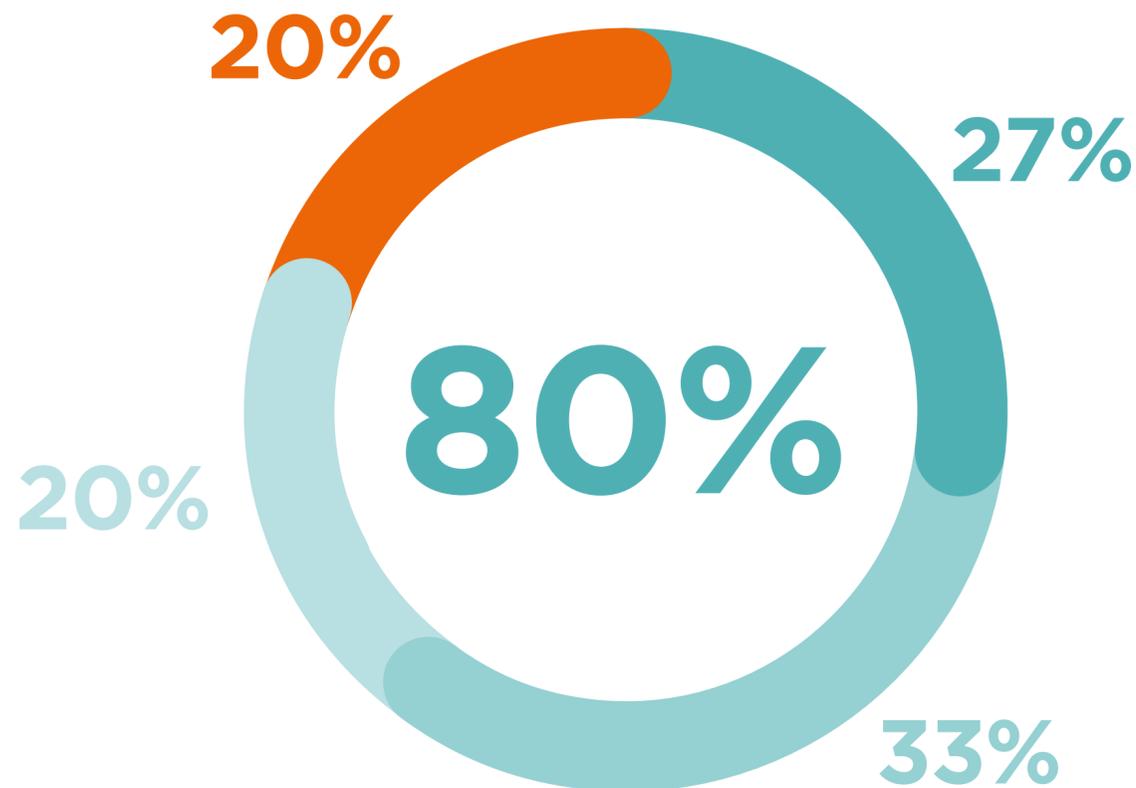
For a company like Saint-Gobain that has historically sold its solutions to professionals, the climate issue is a game-changer. International-scale companies need to get not only their customers but also public authorities on board and convince them to drive sustainable construction forward.”



An important issue for students

In your training, do you receive teaching on sustainable construction?

Students



- Yes, regularly
- Yes, occasionally
- Yes, but rarely
- No, not at all

Base: students (total 200)
Only one answer allowed

Students, for whom sustainable construction is principally associated with reducing the environmental footprint, recognize its importance for their **professional careers**.

Many (81%) consider it a factor in employability, and 80% are already more or less trained in it.

“Sustainability will play a major part in inspiring vocations”



Magdalena DEXTER
Senior VP Communication
and Human Resources
Saint-Gobain North America



“Sustainability will play a major part in future talents considering a career in the construction sector. For companies in the construction business, leadership and attractiveness will very much depend on the ability to be exemplary: to have a sustainability roadmap integrated in global strategies and to communicate about it with sincerity...”

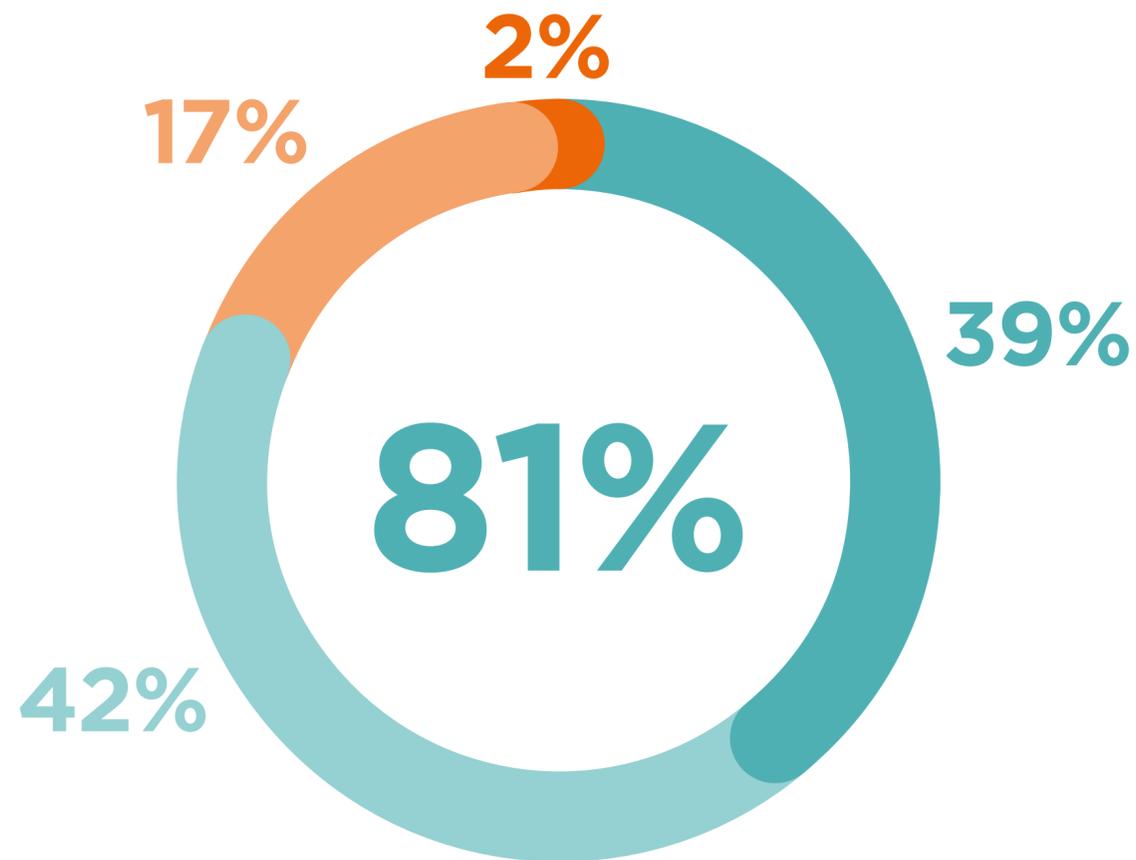
The construction sector has a major impact on climate change – nearly 40% of global carbon emissions come from the built environment – and we should see it as an opportunity! People who join this business today, and those who will join it tomorrow, do so because they see they can have an influence and help address these global challenges.

North America has a very specific journey towards sustainable construction. Ninety percent of construction is already light construction here, but public opinion still needs to connect it with sustainability. Awareness will mostly keep coming from the private sector, rather than from government regulation. Making sustainability the core of the employer promise will ensure the market has the right talents and skills to meet the challenges ahead.”

Not a central factor in the choice of employer

In your opinion, is your training in sustainable construction a decisive factor in getting a job?

Students

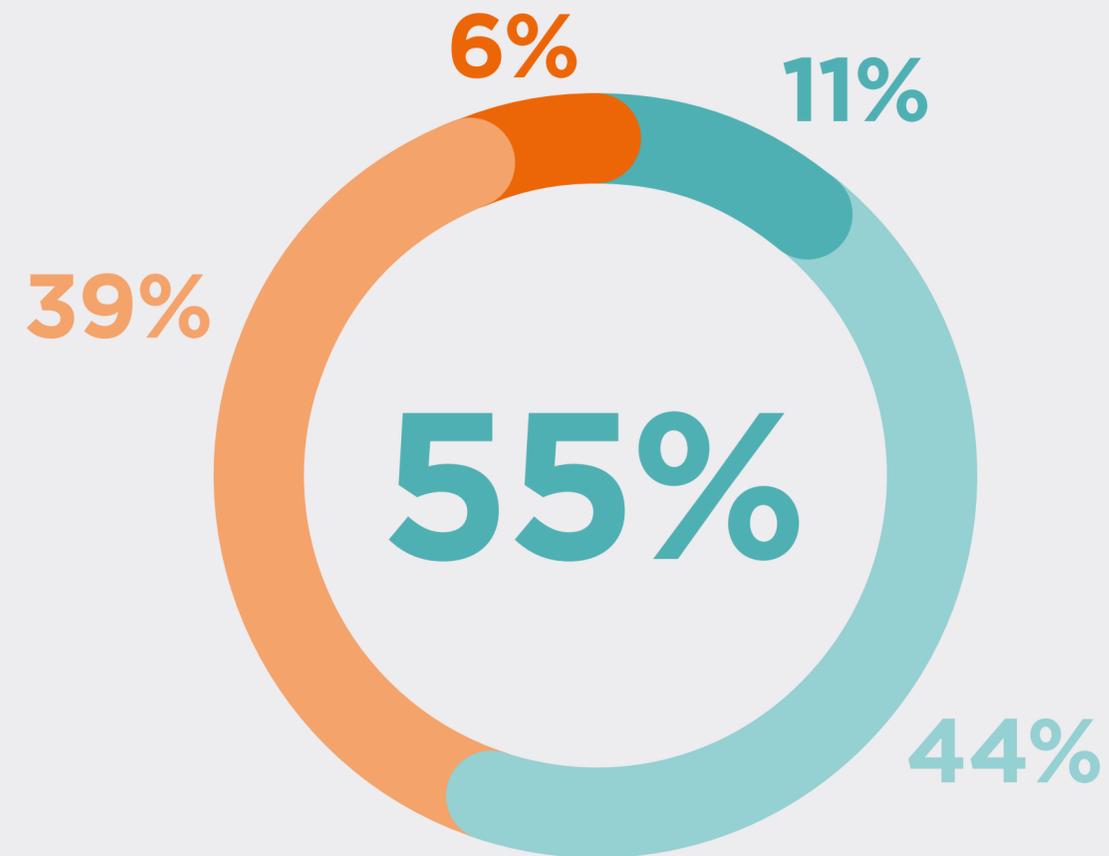


- Yes, absolutely
- Yes, reasonably
- No, not really
- No, not at all

Base: students who receive teaching on sustainable construction (total 160)
Only one answer allowed

Would you personally accept a job offer at a company that is not invested in sustainable construction?

Students



- Yes, absolutely
- Yes, reasonably
- No, not really
- No, not at all

Base: students (total 200)
Only one answer allowed



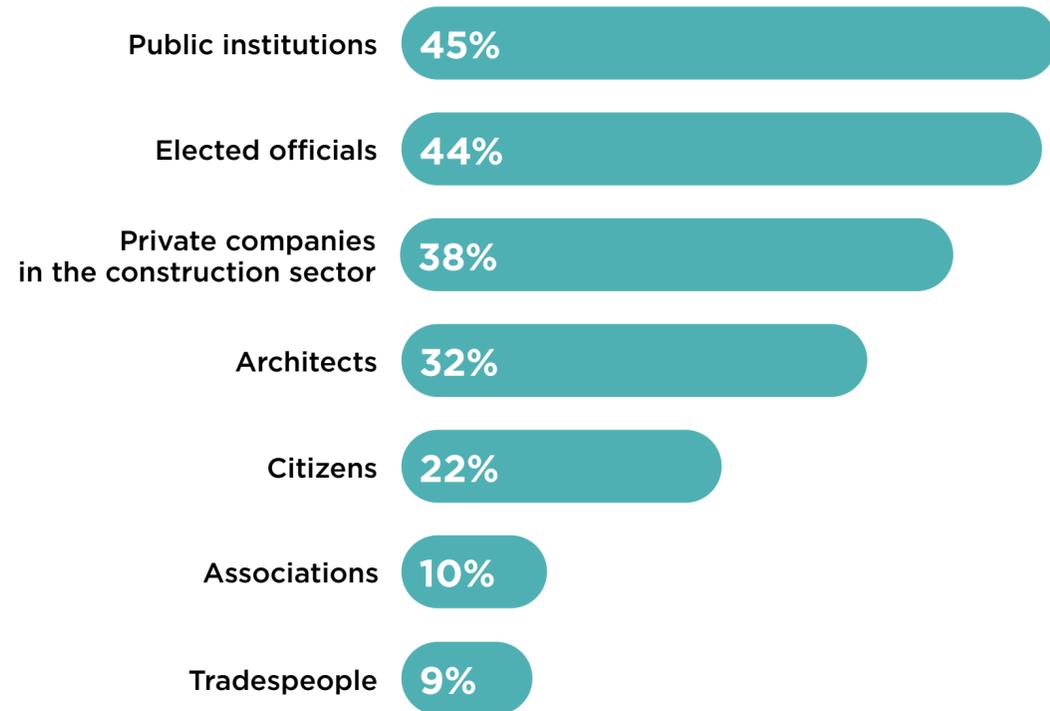
Despite the importance that students attach to sustainable construction, 55% would accept a job in a company not committed to it.

This poses a question: are we looking at a one-off problem that reflects the prioritisation of selection criteria in an uncertain environment, or a structural problem linked to a dichotomy between convictions and work?

Associations prefer dialogue to boycott

In your opinion, which of the following are best placed to drive forward sustainable construction?

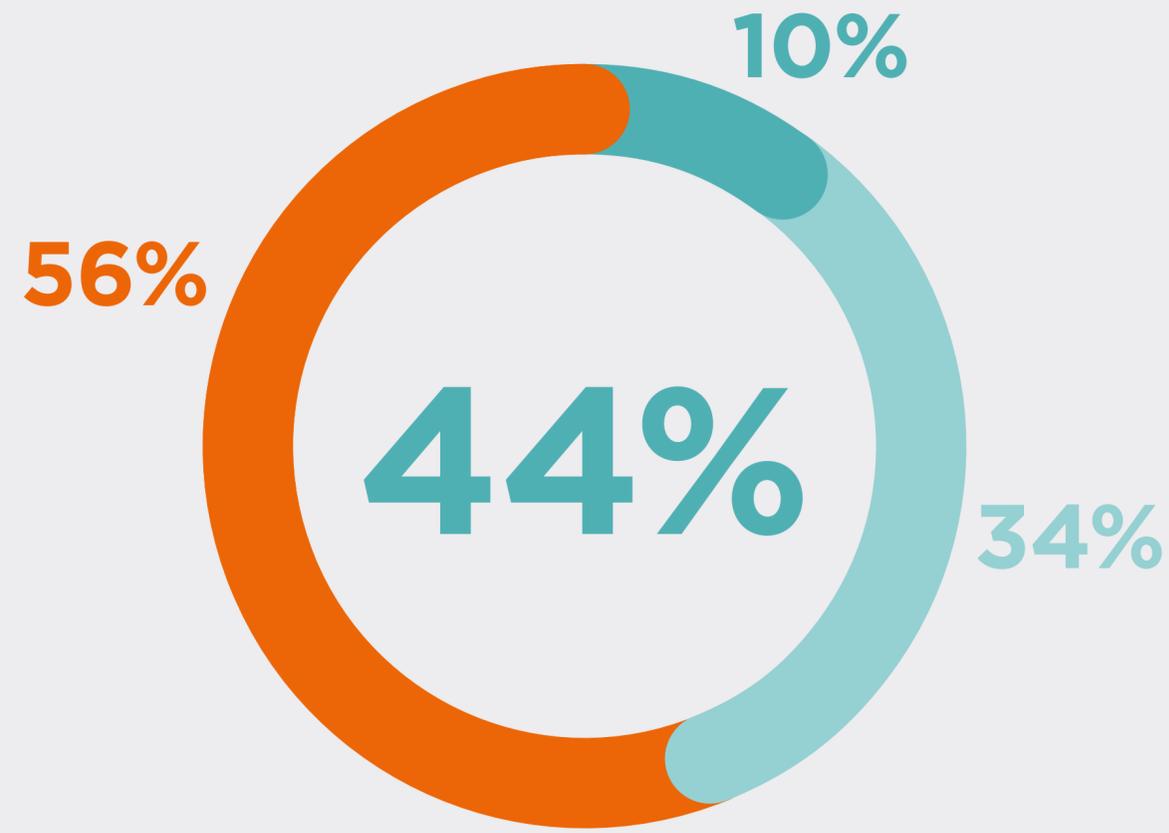
Associations



Base: associations (total 202)
Two answers allowed

Would you personally call for a boycott of building/construction companies that make too little effort to build more sustainably?

Associations



● Yes, I have done so
● Yes, I will
● No

Base: associations (total 202)
Only one answer allowed



For **associations**, pointing the finger at companies that make too little effort in terms of sustainable construction **is not a preferred course of action**, with 56% saying they would not consider it. However, that **could change** if the situation does not evolve quickly enough. Around one-third (34%) of respondents said they would call for a boycott, and 10% have already done so.

In addition, associations do not consider themselves best placed to drive forward sustainable construction, instead placing the responsibility with **institutions** (45%) and **elected officials** (44%), and to a lesser extent, with companies (38%) and architects (32%).

Indicating that their actions are principally aimed at these privileged targets, only 22% of them think that citizens are well placed to accelerate the transition to more sustainable construction.

Acknowledgements

This Sustainable Construction Barometer would not have been possible without the teams of CSA Research, led by Julie Gaillot, and Havas Paris, led by Juliette Gayraud. The Observatory thanks them both for their remarkable work and the result. Thanks also to all their teams, to the people who conducted the interviews locally and to all the opinion leaders who kindly gave their time to testify anonymously (see “Perception of sustainable construction among opinion leaders in France”, pages 24 to 28).

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<https://www.saint-gobain.com/en/sustainable-construction-observatory>

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