



**CORPORATE
SOCIAL
RESPONSIBILITY**
& ACTIVITY REPORT 2020

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ANOTHER ANGLE

Étienne CRÉPON
Chief executive officer
of the CSTB

The health crisis that has affected the entire planet since the end of 2019 may transform our environment. It is possible that there may be a "post-Covid world", but it is objectively too early to tell, and if there is one, we do not yet know what it will look like. It is already clear, however, that it has profoundly changed our perception of the world and therefore our priorities. The transformation has had and will necessarily have a major impact on the building and renovation industry, which develops, modernizes and maintains our living environment. It is also affecting the scientific and technical priorities of the CSTB in its daily and long-term activities for its clients and the public interest.

On a global scale

— **Étienne Crépon** This brutal, worldwide crisis has made us aware collectively that our world and our everyday lives were fundamentally unstable. This awareness can partly explain the increased demand around the world for stronger action on climate change. It is no longer an option, but has become a necessary safeguard measure, just like wearing a mask and social distancing to protect yourself and others.

The health crisis has also profoundly changed our relationship with our living spaces, a decisive factor for our well-being. While it did not take this crisis for people to realize that living in substandard housing can have serious consequences for those in fragile health, it has showed us how our living environment is crucial to our well-being.

For the building industry

— **É. C.** These structural changes to society will have an impact on the building industry whose purpose is to develop, modernize and maintain our living environment. Accelerating a movement initiated in recent years in France and other developed countries, renovation will become more widespread than new construction. This shift will transform the entire industry deeply. Renovation projects usually lead to the property being taken out of use. Reducing construction time thus becomes a major issue. It will be a powerful driver of innovation for industrial companies in the building industry, which we can predict will deliver more and more systems whose implementation will be easier.

The Scientific and Technical Center for Building

— **É. C.** As a public company serving its clients and the public interest, the CSTB is envisioning the buildings and cities of tomorrow by guiding and making safer sustainable construction and renovation projects to improve the quality of life of their users, while anticipating the effects of climate change.

To this end, it creates and shares scientific and technical knowledge to improve the quality of projects and their implementation. It guides innovative companies from idea to market. Finally, it guarantees and enhances the performance and lessens the environmental impact of products and construction systems, as well as structures.

Faced with the crisis, the CSTB is marshalling all its skills to contribute to medium and long-term responses. It is in this spirit that it helped the County Council of Hauts-de-Seine to enhance health safety for the reopening of junior high schools. With the full agreement of the Council, the CSTB then made the findings of its work freely available.

In addition to these first emergency expertise missions, the CSTB has launched a multi-year research program to better understand how viruses circulate and survive in confined spaces and to assess the effectiveness of different remedial plans. This project will be conducted in partnership with other research stakeholders and should end in 2023.

The CSTB specializes in a systemic approach to structures and neighborhoods and draws on its long history of analyzing building lifecycles and their environmental impact to develop its capacity to address real and perceived comfort in living spaces comprehensively.

Its objective is to measure the overall comfort of buildings by aggregating all the factors influencing them and gradually identifying causes that affect well-being.

These skills are and will be made available to its clients and partners because applied research needs stakeholders who agree to conduct experiments to confirm its relevance and operational utility.

Its purpose is to serve the industry and support the emergence of solutions that meet all the new challenges, taking account of the advances that are made in its performance assessment benchmarks for construction products and systems, as well as structures.

The CSTB and each of its employees have long been committed to progress and society. Today, I want to share with all of you our actions in social and environmental responsibility, whether in our missions or in our internal operations. That is the purpose of this first CSTB CSR Report. Happy reading!

A WORD WITH SYLVIE RAVALET

Delegate General Director
Deputy CEO

One lesson that we can learn collectively from going through crisis we have been for more than a year now is that the world is profoundly unstable. The things we take for granted can be disrupted and brought into question from one moment to the next.

As a public industrial and commercial institution serving its clients and the public interest, the CSTB must be robust in the face of such shocks and always available for its clients. One of the key objectives in the business plan outline that the CSTB adopted in the summer of 2019 is to boost our responsiveness and the Group's resilience.

Based on our ambition of "envisioning the buildings and cities of tomorrow by guiding and making safer sustainable construction and renovation projects to improve the quality of life of their users, while anticipating the effects of climate change" our business plan has six areas of focus broken down into sixteen action programs.

So, in concrete terms, where are we after a year of implementation of this project and a major health crisis?

Here, without going into the details of each project, are some of the achievements of the project.

For "Make the client the focus of action at the CSTB," a process of in-depth transformation of our client relations completed in 2020, led to the creation of a Sales and Marketing Department and implementation of a system to manage our relationships. The CSTB has listed its 3,000 types of services in a catalog that it offers to its public or private clients.

To "Dedicate the skills of the CSTB to innovation," the CSTB has undertaken a reform of Technical Appraisals, which the Commission Responsible for Issuing Technical Approvals (CCFAT) has adopted. It has also analyzed the needs of companies in their innovation processes and determined how best to support them based on the level of maturity of their ideas. This is major project for 2021 that will continue in the coming years.

"Develop CSTB's activities through partnerships and multidisciplinary teamwork" is our third area of focus for which Hervé Charrue, Director of Research and Development at the CSTB, has initiated reform of the management of our research activities. He says the reform was built around the dual objective of developing a multidisciplinary and systemic to the subject areas, the challenge also being to ensure the scientific and technical quality of the CSTB's work. For certification activities, focused on the key objective of validating the performance of construction products and systems, the CSTB has launched a project to harmonize and digitize its procedures to make them more efficient for its clients.

To "Increase the collective agility and operational efficiency of the CSTB," the Group has redefined its work processes to make them simpler, clearer to the teams and more easily assessable. It has implemented its master scheme for information systems, which enabled it to meet its objective starting during the first lockdown.



Finally, for the fifth area of focus, "Spread a corporate culture that reflects the goals and values of the CSTB," I will touch on one of its four programs, "Corporate social responsibility." We have started identifying our CSR responsible initiatives, and this report is the first presentation of them. In parallel, the CSTB had its CSR actions assessed for the first time by an independent third party (early 2021). Selected by the government within the framework of the recovery plan for the renovation of its Champs-sur-Marne, Grenoble and Sophia Antipolis sites, the CSTB will be able, through these ambitious projects totaling more than €16 million, significantly reduce greenhouse gas emissions, have a testing ground for its research activities on BIM and energy performance guarantees and improve the quality of working life for its employees, as well as the safety conditions for its clients.

All these projects are true transformation initiatives that will profoundly change how our teams work. I want to applaud their unflinching commitment, especially during the health crisis as they adapted their ways of working and maintained contact with their clients.

Despite the health crisis, or maybe because of it, the CSTB teams have put all their commitment into this project, sometimes changing the way they work completely, and always guided by a shared goal. They showed that they really wanted to conduct this transformation project and were quite capable of doing so, even in these complex times, and I thank them. —

HERVÉ CHARRUE

Deputy CEO in charge
of Research and Development

What did we learn from 2020? Beyond everything that we all experienced, or perhaps were subjected to, regarding health, the economy, and society in 2020, including changes in our individual and collective behavior, it was a year that forced us to question the meaning of our everyday lives.

Lockdown radically altered our relationship with buildings, whether as living spaces, for working or for leisure, or all three for many of us. Closed and covered spaces are now seen in a different light. From places of protection and healing, they have become hubs of constant activity, both personal and professional, as well as spaces for contamination, spaces that buttress social barriers while blurring the boundaries of private life, still intangible for many. As a counterbalance, the ubiquitous, unbridled digital world is overwhelming us with ever-more relevant information, transforming our Homo urbanus social relations into the hyperconnected Homo numericus under the unyielding pressure of time, events and the moment.

Faced with this pandemic and the risks that it embodies and that point us toward our demise, the most striking point was, beyond the pressing need to understand and be informed, the types of responses to it. The free expression of various stakeholders, whether appropriate or not, has led us to disregard high-quality information to some extent, placing it in competition with misinformation and fake news. Words of science were no exception, regardless of their purveyors' time and commitment to investigation and discussion, at all costs, before declaring a truth to be "based on existing knowledge."

This is why the rethink of how research is organized at the CSTB initiated two years ago and finalized in 2020 takes on its full meaning. It aimed to provide everyone, whether professional, user or citizen, with reliable, accessible information for a broad, pluralistic understanding of the building in its urban setting, adapted to varying needs and expectations. Moreover, it positions the CSTB and its partners as leaders on these key issues for society.

This overhaul of CSTB R&D goes beyond the disciplinary and systemic framework of the previous scientific priorities (Energy & Environment, Risk Mitigation, Health & Comfort, Economics & Usage, Digital Technologies). Priorities for which it proved difficult, except for specialists, to have relevant representation specific to the building industry. It was therefore challenging to see which societal issues the CSTB was addressing with its research.

The embodiment and appropriation of these issues are at the core of this effort, resulting in four strategic areas of action: achieving "buildings and neighborhoods for living well together"; recontextualizing key societal challenges like "buildings and cities facing climate change"; addressing the key to success largely through "innovation, reliability in construction and renovation"; and, finally, mobilizing "the circular economy and resources for the building industry." This distinguishes the CSTB and its partners from other organizations. We need a systematic and multidisciplinary approach, both socioeconomic



and technical, to these strategic areas of action. It enables detailed, tailored responses that are scientifically and technically sound. Whether public or private—local authorities, industrial companies, developers, businesses, social housing operators—all take different avenues to contribute to the scientific approach developed to meet common challenges in a way that applies to many. Adaptability, especially under often uncertain conditions and perspectives, will be the key and requires shared understanding of strategic issues, such as those we have defined that reflect the community of construction stakeholders.

The year 2020 will be historic in any case, whether we have learned from the consequences and change our lifestyles decisively and address priorities, or, on the contrary, driven by a desire to dismiss and forget our constraints, we miss out on what some would call "the twenty-first century opportunity." Unfortunately, the reality of history can be perplexing as the frenzy of the moment confronts its making and creates time misalignments between the social, the political and the building.

This is why the CSTB must communicate about the role of buildings and their prospects as well as their limitations. It must also educate people about the effects of our behavior, our individual and collective uses of buildings and enhance their contributions and impacts on individuals, cities and the planet, which are often irreversible.

Let us remember that the building occupies more than eighty percent of our daily lives, maybe even all of it during this health crisis. It is time to restore the visibility and role it deserves. The future of construction (re)starts now. —



Which societal issues does the CSTB's research address?

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FOUR QUESTIONS FOR SOPHIE MOREAU

Director Strategic Area of Research

"Buildings and neighborhoods for harmonious community life"



You just took over leadership of the "Buildings and neighborhoods for living well together" strategic action area. Isn't that more a social, even societal, topic?

— **Sophie Moreau** Well, we want to investigate subjects that reflect the concerns of society. Reaching beyond our disciplinary base to address societal issues is precisely the reason for the major reorganization of research at the CSTB. "Living well together" is an ambitious goal that involves all of us and requires proactive initiative in the broader community. Our ability to meet our basic needs is closely linked to our living spaces and our perceptions. First, we must provide safe, healthy and comfortable spaces to everyone throughout their lives and offer attractive and "peaceful" neighborhoods and cities that are conducive to social ties and promote socioeconomic activities. This means embracing the private domain of housing as well as the public space and everything in between, including our varied living spaces and how we get around. This is far from easy. Our territory still has too much unfit and unhealthy housing, and too many households in fuel poverty. Even if these housing units receive massive investment through the recovery plan, not everything will be fixed. As you know, the situation of the current housing stock and future expectations are compelling us to act. We must move toward the buildings and cities of tomorrow in response to residents' new lifestyles and aspirations, while keeping our focus on the problems that are unresolved for the moment. Whether for a building or a neighborhood, the CSTB must take part in this multiscale, dynamic, and systemic way of thinking and go beyond a purely technical approach. This requires the different specialist perspectives, a comprehensive vision of the issues, and a powerful desire to cast light on various scientific fields and to find operational solutions that improve people's lives tangibly.

The relationship between the living spaces of buildings and neighborhoods is obvious, but can the CSTB have one-size-fits-all approach? Are you going to address the challenges of both ecosystems in the same way?

— **S. M.** That's the right word: ecosystem. The urban fabric is an ecosystem made up of buildings that form neighborhoods. And it is that ecosystem that we must look at closely. Everything we are studying requires us to understand all the interactions in the building-neighborhood system. You can see this clearly in the areas of climate change and the circular economy, for instance. It has become commonplace at the CSTB to approach subject areas by combining different scales. The tools and methods we develop and use may differ, but the phenomena are similar and mastered by teams of researchers who started looking beyond the scale of the individual building long ago.

You talked about databases. Consolidating the knowledge in them appears to be the backbone of your research. How are going to populate them and process the data? And will you share the data?

— **S. M.** Data is a core issue in many areas. Building a structured and validated knowledge base is essential for developing simulation and decision support tools, expert systems and so on. The databases we build can serve for a number of different subjects: they might be vital to assessing the cost of poor housing and also useful for making renovation more reliable and widespread. Our earlier work allowed us to gather a lot of information and develop analysis and processing skills. We must forge ahead in this direction by enriching and structuring the database and cross-referencing it with exogenous data on the condition of buildings, substances presenting a health risk and the qualification of urban areas, for example. We will also need to gather knowledge from other stakeholders to build new databases to study emerging topics. Our academic partnerships, which complement our skills, will be strengthened, and we will build new ones to expand the knowledge required to investigate topics, develop novel approaches and enable the transfer of our research outcomes.



Living well together" is an ambitious goal that involves all of us and requires initiative in the broader community.

Concepts such as the Smart Building, IT, Big Data, and the Augmented Building, which are sometimes sources of concern to many, are becoming increasingly important in our daily lives. How can we remove the bottlenecks to get more services and "live better together"?

— **S. M.** These technologies worry and fascinate at the same time. However, far from being gadgets, they can provide services to the occupants of living spaces. If you want these technologies to have a broad impact on construction, you must get ownership by the inhabitants, which only happens when well-being and comfort improve and there are gains in direct and indirect costs in the long run.

These technologies also provide support to operators, including solutions that make preventive maintenance easier. This is a key point because they will enable buildings to deliver on their promises over time, while ensuring the same level of comfort and performance as on delivery. You have to establish industrial procedures and quality control mechanisms to make solutions reliable, robust and accessible. Moreover, widespread rollout is only possible if there is standardization, which makes connected solutions interoperable.

FOUR QUESTIONS FOR ALEXANDRA LEBERT

Director Strategic Area of Research
"Buildings and cities facing climate change"



Alexandra Lebert, the CSTB has just asked you to lead one of its four strategic action areas of research, "Buildings and cities facing climate change." What was your reaction to the offer?

— **Alexandra Lebert** When the management offered me the position, I was heading up the Environment team and leading the Energy & Environment Science and Technology program. I hesitated for a few days, but the answer was obvious: yes, I wanted to invest even more in the CSTB and guide the ecological transition in the building industry. This is what gives meaning to my work and my passion and gives me the feeling of being aligned with my values. I chose to study energy and the environment, and when I joined the CSTB, I wanted my work to have an impact on society. It is undoubtedly my convictions and my commitment to dialog and to the collective that led the Group to offer me this position.

Concerns about climate change are not new. Why is the CSTB investing in climate change? And why is it strengthening its commitment now?

— **A. L.** Concerns about climate change are far from being new to the CSTB. A research program on this subject was already in place in the 2000s. For a long time, we worked on energy control at the scale of buildings and then neighborhoods, through the prism of the scarcity energy resources. Today, we must combine this with climate change, which is becoming more pervasive and urgent, as well as self-evident to a large part of the population. The CSTB is a public institution that addresses issues facing society. Climate change is one of the major challenges for current and future generations, and the Group must be involved and "do its part" in this vital transformation. The CSTB is bolstering its research and visibility in this area because we know that the effort is immense, the solutions take a long time to implement, and the stakes are high. The consequences will be enormous.

Our four strategic action areas of research combine two inseparable strategies: mitigation AND adaptation. Renovation is a major issue in the roadmap steered by Romain Mège and a substantial driver for reducing greenhouse gas emissions, as well as having great potential for adapting the built environment. Comfort and health issues in the context of climate change or urban heat islands are, of course, reflected in Sophie Moreau's strategic action area.

The building industry generates a substantial share of CO₂ emissions, but the CSTB is neither a manufacturer nor a builder. In what ways can it be a driving force in this area?

— **A. L.** The CSTB anticipates the challenges and conducts the necessary research with all the stakeholders. Regarding carbon, we were doing work on the scale of the building, which we recently extended to the levels of the product and materials to encourage low-carbon innovation, and to the neighborhood level to address how construction stakeholders can participate in solutions. Its research strategy, expertise, roles as an evaluator and knowledge broker, presence on standardization committees, and support to public authorities enable the CSTB to shift the boundaries in so many areas by exerting influence in each group it belongs to. Controlling climate change involves a variety of skills to characterize current and future hazards and the consequences on the built environment and its users, and to determine adaptation strategies. To understand the challenges, drivers and impacts so that we can simulate, invent and test solutions, we need climatologists, structural engineers, energy specialists, experts in the analysis of the life cycle of buildings and building construction systems, comfort and air quality specialists, sociologists, ecologists, IT developers and data processing specialists, among others.



The CSTB brings together skills, develops a cross-cutting vision of the topics, and nurtures the collective organizations that can devise these solutions.

One of the CSTB's missions is to develop and share scientific and technical knowledge. How is this reflected in your research area?

— **A. L.** The responsibility of the CSTB is to enable stakeholders, whether operational or governmental, to have an objective vision of the issues and their influence in controlling climate change. We build and disseminate tools to stakeholders so that they can make the best decisions in this area and prepare for the adaptation of territories, buildings, and their uses. We work for project owners, housing operators, communities and the State. We prepare regulatory and normative frameworks, as well as quality indexes that serve as compasses for stakeholders. We assess the impact of incentive policies, and above all, we provide data and knowledge to stakeholders so that they can act in an informed and effective manner on a large scale. The outcomes of our work are widely disseminated to the scientific community through articles and communications; in the field using tools (computing cores, applications, charts, technical guides, training courses) and through consulting projects. Our goal is to reach the inflection point, the point where broad adoption takes place. This is what the CSTB does, alone or in partnership with projects like ELODIE, Go Rénove, and the National Building Database, SEREINE for example.

FOUR QUESTIONS FOR ROMAIN MÈGE

Director Strategic Area of Research
"Innovation and improving the reliability
of the construction process Renovation"



You just became the leader of CSTB's "Innovation and improving the reliability of construction and renovation" strategic action area. What are your missions? And how are you going to approach this new responsibility?

— **Romain Mège** My role as director is to structure, plan, coordinate and supervise the conduct of research in this area. It also consists in breaking down barriers and seeing that there is cross-disciplinary cooperation. Specifically, this involves determining the major research challenges of the next decade in conjunction with our researchers and building industry stakeholders, and then identifying the actions that best meet the needs of the sector. This is particularly exciting because it covers a wide range, from leading-edge innovation to widespread adoption of efficient and sustainable renovations and the characterization of processes and structures throughout their service lives. Coordination with three other strategic action areas, "Buildings, neighborhoods and cities for living well together", "Buildings and cities facing climate change" and "Circular economy and building resources", covers all the building industry issues of yesterday, today and tomorrow using the systematic multidisciplinary approach that characterizes our research.

Personally, this appointment allows me to interact with all the CSTB trades regarding new themes and allows me to build on my operational experience and use it to sustain a comprehensive strategic approach.

"Innovation and improving the reliability of construction and renovation." These are widely addressed subjects. How will your research differentiate itself? What will be its added value?

— **R. M.** It is rare to see renovation, reliability and innovation coexist within the same thematic area of research, but that is what the CSTB is counting on for the coming decade. We believe that innovation in renovation will be substantial, even though most R&D spending in the private sector targets new construction. It is clear that the sector has a lot of work to do to increase the reliability

of new construction and renovations. Some sources estimate that the repair of building non-quality and associated problems represents about 10 percent of construction revenues.

We must help provide all renovation stakeholders with the tools, products and methods that enable them to improve the reliability of, and broadly expand building renovation. At the same time, we continue to guide the industry in how to build, whether for new or renovated structures, directing it toward multicriteria assessments, mixing of materials, optimization of design, reduction of vulnerabilities and digital technologies. Specifically, we will investigate optimal designs of conventional building structures to identify the criteria (acoustics, fire, structure, insulation, carbon) that constrain sizing while others are respected. The new insights will enable designers to optimize their projects. Regarding digital technologies, we will extend our activities designing digital tools and standards so that they are interoperable across all building trades. We also focus on prefabrication and improving the reliability of measurements and planning to reduce material requirements and meet the challenges of project timelines, costs and environmental quality.

The CSTB strongly believes in partnerships so it can be as close as possible to needs on the ground and disseminate the knowledge developed as widely as possible. It is a unifying force that provides the missing link between academic developments upstream and the needs of the building industry associated with improving reliability.

As you just pointed out, the outcomes of your research area concern a wide variety of stakeholders, including major players in the building industry and public works, very small businesses, small and medium-sized enterprises, and socioeconomic stakeholders. How do you address such different typologies?

— **R. M.** The building industry is highly segmented, with large enterprises and then a broadly spread fabric. Added to this are stakeholders in design, including architects and consulting firms. Each of the stakeholders has a technical background and constraints specific to their trade and the size of their organization. We will therefore communicate our research outcomes to all these audiences and undertake an internal process to determine the purpose of our knowledge and research assets, associated with our knowledge management approach. We will also boost our communication to make our most important work more visible and give us more immediate access to our results.



It is rare to see renovation, reliability and innovation coexist within the same thematic area of research, but that is what the CSTB is counting on for the coming decade.

For example, we aim to put the national building database online soon, bringing together all the open-access knowledge available on a single platform that is accessible to the public. We will also work on providing digital tools to enhance reliability on worksites, such as simplifying measurements and making visual records available for consultation so that individual property owners who are having work done can detect and report faults during delivery, without prior building knowledge.

What about the public? Does it have a role to play?

— **R. M.** To strengthen and extend the benefits of rehabilitation and the integration of innovations into buildings, it is necessary to collaborate with people who live in and maintain buildings every day to help them understand housing issues, best practices and how buildings operate. We will therefore make our key research results accessible to the widest audience possible. This will include awareness raising for all ages on structures, water systems, heating, humidity, comfort and air quality. We want to create long-term partnerships with textbook publishers and offer communications suitable for the general public.

FOUR QUESTIONS FOR ALEXANDRA LEBERT

Director Strategic Area of Research
"Circular economy and resources for buildings"



Alexandra Lebert, you are also leading the "Circular economy and building resources" strategic action. What are your first tasks?

— Alexandra Lebert The beginning of 2021 was the time to take stock. We all took a break from the routine to see what we have achieved in recent years. For the circular economy, we have a dedicated team that works with others to provide a multidisciplinary vision of the subject (environment, economy, health, etc.). Regarding the scientific point of view, we reviewed the main deliverables of the research we have conducted in the last few years. The researchers took the time to explain their individual and collective contributions to the emergence and use of the outcomes. We are now in the finalization phase of the roadmaps for the topics, with the goal of breaking them down into programs for the coming years. We want to bolster research management to make the best use of internal skills and research staffing and build stronger partnerships to address the challenges in our roadmaps. Beyond research, the topic of the circular economy concerns other CSTB activities needed to guide innovations to emergence, make them safe, assess them and roll them out.

The building industry is resource intensive and produces a lot of waste. Don't we need a complete paradigm shift if we want optimization?

— A. L. In a century, we have multiplied consumption of resources (from living creatures or not, renewable or not) on the planet by ten, on average. Yet, for over half a century now, we have been talking about Limits to Growth (the Meadows report). In 1972, four young researchers at the Massachusetts Institute of Technology published this landmark report, and yet the situation has not changed, even if there are many initiatives revolving around reuse, the performance economy, and frugal architecture. To get past the tipping point between experiments and widespread adoption, there are significant technical,

legal and economic hurdles, but the main obstacle is collective imagination. This 'future', 'economy', needs to make sense, to be desired. Our value system must be reshaped so that recycling, reuse and minimal use of resources become the priority and a reflex for all. We must understand that we can no longer design buildings that are permanent, whose structures only tumble with dynamite.

How can the CSTB take part in this new type of development?

— A. L. Our goal is to demonstrate the potential of recycling and reuse and to be a facilitator. This includes, for example, enabling local authorities to anticipate future waste streams and the processing facilities to manage them, helping to remove the obstacles planners face when contracting, and disseminating good practice guides and digital tools to optimize the demolition phase, which plays a pivotal role in waste recovery. As an evaluator, we need to make our practices more secure, whether at the diagnosis stage of a building at the end of its life for reuse of its components, at the reconditioning center before release on the market, or for increased integration of recycled material into new products. As we guide innovation, we must play a trusted third-party role in characterizing performance in eco-design, help identify opportunities to find sources of recycled material, and support reuse sectors in identifying performance levels and ways to do so.

We talked a lot about the "building" and optimizing its life cycle. What's the situation in water management?

— A. L. If we want to continue providing safe drinking water to all and meet the needs of agriculture, without increasing water stress, we must make progress in controlling water consumption (whether drinking or not) and the quality of water discharged into the environment.



We want to enhance research management to make the best use of internal skills and research staffing and build stronger partnerships.

The CSTB guides new water management practices in buildings and their lots and on a neighborhood scale by strengthening the health dimension of practices within buildings. The issue is the integration of techniques into buildings (use of rainwater and greywater, recovery of calories from greywater, non-collective sanitation, dry toilets), their maintenance over time and the impacts avoided or resulting from them on the environment, occupants and networks. Stormwater management (through infiltration techniques with sound land use and waste stabilization ponds) on roofs, on lots and at neighborhood scale is a subject of research and experimentation at our Aquasim facility. In addition, the CSTB is interested in the incentives and barriers to using these techniques, and, as part of the "Buildings and neighborhoods for living well together" strategic action, in the sensory perception of drinking water taste and the links between water, soil and the ecological restoration of cities and buildings. The water issue is linked to biodiversity and urban heat islands, and thus to controlling climate change.



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ACTING FOR THE PLANET AND FUTURE GENERATIONS

Global warming and other environmental transformations are damaging the natural environment and changing living conditions. This is why the CSTB's environmental commitment forms a key part of its activities and applies in various ways to its approaches and methods based on their requirements, but without compromising the ability of future generations to meet their own requirements.

Through its continuous improvement in management, administration and research activities, the CSTB Group is helping to reduce greenhouse gas preserve, preserve resources and cut energy consumption. It is guiding the energy and environmental transitions and stimulating the development of the circular economy and reuse of materials. For this, it collects data and develops innovative tools, methods and indicators for public authorities and stakeholders in the building industry and urban development. It is doing everything it can to take care of the planet for future generations.

The CSTB is helping to reduce the carbon footprints of buildings, improve their energy performance and ensure thermal comfort in the face of climate change. Building on its wide-ranging expertise, it is guiding the building industry and the implementation of the new French environmental regulations for new buildings, RE2020: research, assessments, dissemination of knowledge, training, standardization, and support for public authorities are the stepping stones.



1. CREATING KNOWLEDGE THROUGH RESEARCH AND DISSEMINATING IT THROUGH TRAINING

City of Lille rallying stakeholders in the building industry for a sustainable city

The CSTB helped the city of Lille to develop a commitment document with local construction stakeholders for a low-carbon city.



Maison de l'Habitat Durable, Lille

The city of Lille has long been committed to a sustainable city, demonstrated by the actions that local authorities and other local stakeholders have taken.

When it was nominated for the European Green Capital 2021 prize, Lille and its building industry partners wanted to define together the broader commitments to urban planning and construction to mainstream proven and effective solutions for the climate, the environment and health. The CSTB was then asked to co-lead a series of workshops with the City of Lille to discuss and collectively produce proposals on five priority themes for the low-carbon city: **circular economy and reuse, adaptation to climate change, low-impact mobility, biodiversity and urban agriculture, renewable and low-carbon energy.**

Cristina Garcez, Director of Urban Strategies at the CSTB, ran these workshops with Caroline Lucats, Director of Habitat and Risks for the city of Lille.

Teaching and collaboration

Five daylong workshops took place with twenty to thirty people representing public and private planners, private developers and social housing operators to address five priority themes. During the first part, CSTB experts provided scientific and technical viewpoints. Criteria were then proposed to the participants for discussion.

These meetings led to the drafting of a commitment document, the *Pacte Lille Bas-Carbone* (Lille Low Carbon Pact) signed on June 18 by the City of Lille and local construction and urban planning stakeholders for all professional real estate projects in the Cities of Lille, Hellemmes and Lomme.

The priorities for the Lille Low Carbon Pact comprise operational requirements divided into two levels: "Basic" bringing together impactful actions that apply consistently to all projects, and "Advanced" with even more extensive actions that apply to the choice of each project. "This commitment document is not

binding and will be scalable. It can be adjusted based on the various experiences and successes and failures. The signatories are determined and committed to the project," says Cristina Garcez.



To learn more
Energy & Environment - Services -
CSTB Research



The support and expertise of the CSTB were valuable and crucial in determining the Lille Bas Carbone requirements. It enabled us to establish requirements that have real environmental impact and are specific to desired outcomes, technically feasible and economically measurable and assessable. One of the fundamental contributions of the CSTB is a change in perspective: it is essential to consider the environmental performance of a project from the design stage to minimize cost overrun. Having the CSTB as a resource for technical exchange with our real estate partners has been an asset to the city of Lille. >>>

Audrey Linkenheld,
First Assistant to the Mayor of Lille



CSTB'Lab GreenTech incubator

In 2020, the CSTB joined the national network of GreenTech incubators, officially launched by the Minister for Ecological Transition, Barbara Pompili.

The network includes incubators of national public bodies, such as Météo France, the French National Institute of Geographic and Forest Information (IGN), the French Center for Study and Consulting on Hazards, the Environment, Mobility and Land Management (Cerema), and local initiatives like the Arbois-Méditerranée technology cluster and the French Tech network. The aim is to structure support for French innovation around the ecological transition, fostering synergies between incubators and increasing visibility by leveraging the relationships between research stakeholders: in short, scale up green innovation.



To learn more
CSB'Lab Start-up accelerator



Greentech Innovation
<https://greentechinnovation.fr/>



2. ASSESSMENTS FOR ADVANCING INNOVATION

RénoStandard: comprehensive, optimized renovation solutions for private homes

To facilitate comprehensive renovation of private homes in different sectors, the CSTB is steering the project using standardized solutions.



Standardized private homes can be rehabilitated through comprehensive solutions: this is what the leaders of RénoStandard want. RénoStandard is one of nine projects developed under the PROFEEL program (sector program for innovation that generates energy savings in buildings and housing units), which aims at developing and guiding innovation for energy renovation in buildings.

PROFEEL stemmed from the work of 16 professional organizations in the building industry, which gathered in 2018 to collectively contribute to the success of the French Building Energy Renovation Plan launched by the government. The RénoStandard project is being led by the CSTB in partnership with the National Housing Agency (Anah) and Urbanis consulting company, in collaboration with professional consortia.

Working as a consortium for comprehensive renovations

"There are few offerings for comprehensive renovation of private homes in the sector," says Rofaïda Lahrech, Science and Technology Officer of the project who is coordinating a multidisciplinary team of experts from the CSTB with Olivier Greslou, Head of Strategic Research. The objective of RénoStandard is to develop standardized solutions for improving the energy and environmental performance of standard models of private homes in France. The "one-size-fits-all" solutions will be adapted to the specificities of each housing unit to be renovated after a cross-cutting diagnosis.

The primary objective of the project is to encourage professionals to work in consortia and develop comprehensive solutions for case studies. The next step is to guide the development of technical and commercial offerings for the comprehensive renovation of private homes whose owners, non-professional individuals, are unfamiliar with the technical issues.

The initial call for expressions of interest made it possible to work with industry professionals to identify forty typologies of "standardized" private homes, meaning those whose structures can be replicated.

The second call for expressions of interest was directed at consortia to select one of the identified home models and design a comprehensive solution for energy rehabilitation, if possible prefabricated. Nine consortia offering solutions for eleven typologies were selected to design reference pre-projects.

100 homes to test and adapt the projects

CSTB experts in relevant areas of specialty (identified and coordinated by Franck Leguillon, Engineer, Thermal Insulation, Research & Expertise) are guiding the consortia to help them secure their innovations: identifying elements noncompliant with industry standards, analysis of fitness for purpose, awareness raising regarding technical assessments. They also ensure the quality of transitions and interfaces between batches and overall performance, making sure that energy renovation does not degrade other types of performance in housing units, such as acoustic and light comfort, summer comfort and architectural quality. And costs must remain under control while maintaining quality.

A hundred real houses (ten per type) will be diagnosed by Urbanis and the solutions presented to their owners to analyze the ability to replicate them at scale.

The CSTB has developed tools to "support renovation" and make it easier for owners to buy in: a method of cross-functional diagnosis of houses and digital formats for visualizing rehabilitation solutions, as well as assessment tools.



To learn more
Energy renovation - Services - CSTB Research



RénoStandard, a project resulting from the program PROFEEL
https://www.youtube.com/watch?v=xYIYCdB Y8sY&list=PLM4Nv5rFKZACnLMwPz5LrH8Lsn H_di6k_&index=4&ab_channel=CSTB

Le CSTB'Lab sparks building industry start-ups to develop low-carbon solutions

In 2020, the CSTB start-up accelerator continued its support of start-up companies developing innovative solutions that contribute to the environmental and energy transitions in the building industry and urban development. Renovation, Circular Economy, materials, energy saving, reuse, etc. CSTB'Lab hosts a start-up pool that is reducing the carbon footprint of the building industry:

Circular economy, reuse, recycling

- > **Gwilen** transforms marine sediments in ports into low-carbon building material.
- > **Co-Recyclage** provides digital tools and innovative processes to optimize the reuse of furniture, equipment and materials and reduce waste.
- > **Néolithe** transforms nonrecyclable waste into environmentally friendly building materials.
- > **Sasminium** is developing a construction material that is fully recycled and recyclable, made from plastic waste: Le Pavé®.

Optimization of building use

- > **Kocliko** offers a novel technology to individualize heating costs while maintaining user comfort.
- > **Sitowie** has created a technology to simulate degradation of buildings to optimize the maintenance of the existing building stock and develop truly sustainable buildings.

Created in 2017 with the support of Impulse Partners, CSTB'Lab wants to accelerate and strengthen the projects of young innovative businesses producing products for intelligent, sustainable, responsible and connected buildings. About 40 start-ups have joined the CSTB'Lab ecosystem since its creation.

New construction material, products and systems

- > **Vitrum Glass** specializes in active glass, called "smart glass," which increases comfort while reducing energy consumption.
- > **TechnoCarbon** developed a composite material made of stone and biobased carbon fiber for improving the service lives of structures.
- > **Caeli Énergie** offers a highly energy-efficient air conditioning solution without heat transfer.



To learn more
Start-ups of the CSTB'Lab - CSTB'Lab Start-up accelerator (cstb-lab.fr)





CCFAT
AVIS
TECHNIQUE

3. PROVIDING FRAMEWORKS THAT MAKE CONSTRUCTION AND RENOVATION SAFER

Technical Appraisals are changing to better guide innovation

The path of Technical Appraisal applicants for innovative products has been streamlined and opened to dialog with the experts reviewing the applications, and the documents are clearer for product users.

On the occasion of its 50th anniversary, the Commission Responsible for Issuing Technical Assessments (CCFAT) decided to change the Technical Appraisals (ATEc) by offering designers and installers simplified content and applicants an optimized path that is more open and secure.

"The professional users of the ATEc we interviewed described it as a high-quality document but difficult to read," explains Nicolas Ruaux, Deputy Technical Director at the CSTB. Moreover, the Technical Appraisal was drifting from its primary objective of assessing the fitness for purpose of innovations, and was placing too much emphasis on regulations. ATEc applicants expected a more transparent procedure and clearly identified milestones in their path to accessing Technical Appraisals, so we worked on this transformation."

The CCFAT spent 2020 revising the internal procedure, which was approved at the end of the year for implementation on January 1, 2021.

Streamlined content, practical format

ATEc content has been redesigned for easier understanding. It is more concise and refocuses on information on renovation for designing and implementing systems. Redundancies between the "Specialized Group Opinion" and "Technical File" sections have been removed.

This new content comes with a streamlined and more practical format. The document now appears in a single column with an introductory summary.

In the future, this document will also show the environmental performance of the product or system receiving the Technical Appraisal.

A more approachable path for applicants

For ATEc applicants, the procedure is now optimized and open to exchanges with the Specialized Groups responsible for examining application files.

From the first steps, the applicant can define the profile of the innovation of their product and where it stands legally, formalized in the form of technical guides on the CCFAT website. The applicant can now attend the deliberations of the Specialized Groups to present their product and exchange with members to complete their file.

Ongoing changes

The new Technical Appraisals will be introduced as new applications and renewals are filed.

But the overhaul of the ATEc does not stop here. A new digital version, adapted to mobile media, is planned for 2021.

"In addition, we are working with standards' committees and professional organizations to refocus the Technical Appraisal on innovation by removing from its scope the product families that have become commonplace and facilitating their transition into the traditional field," adds Nicolas Ruaux.



To learn more
Technical Appraisal -
Assessments - CSTB Evaluation



Commission Responsible for Issuing
Technical Assessments
<https://www.ccfat.fr/>



R2S-4GRIDS label: improved control of energy consumption thanks to digital technology

As the tools for measuring and managing buildings constantly evolve, it is essential to ensure the adaptability of the digital base to be able to connect sensors, devices and services as they emerge.

That's the objective of R2S-4GRIDS, delivered by Certivea, a subsidiary of the CSTB, which labels connected buildings that can accommodate the digital and energy transitions. While R2S prepares buildings to host many digital services to offer greater comfort to users and enable them to interact with their environments, the 4GRIDS extension makes energy flexibility services accessible, with the help of analysis and the control of specific data. This resulted from extensive joint development with the Smart Buildings Alliance and its members, which follows the *Bâtiments connectés, bâtiments solidaires et humains* (connected buildings, cohesive and inclusive buildings) charter, defined by the French Ministry of Territorial Cohesion. By going beyond the regulations, this certification validates stakeholders engaged in responsible digital technology –meaning simple and tailored to users' needs– serving environmental performance.



To learn more
R2S-4GRIDS - Extension
of the R2S Label -
Energy services (certivea.fr)



Responsible digital:
the indispensable digital
security - R2S (certivea.fr)
<https://r2s.certivea.fr/toutes-les-actualites/numerique-responsable-l-indispensable-securite-numerique>



4. THE CSTB COMMITTED TO IN-HOUSE CSR



To promote simple sustainable development and environmental protection on our scale, we first set up a sorting system at source on the CSTB site in Grenoble and encouraged all employees to change their habits by getting rid of as many everyday disposable items as possible and providing them with cleaner alternatives (personal water bottles and cups, for example). Also, organic waste is composted directly for the garden club. Training took place to support these changes and raise awareness of the need to make waste management a constant focus. Beyond the modest daily benefits for the environment, these actions also enhanced cohesion within teams. Soon, we will also take other actions to reduce the amount of waste associated with our activities and try to recycle or reuse it through regional partnerships.

Still with the aim to limit our impact, we made efforts to reduce energy consumption associated with our trades and move toward cleaner energy. For this, we participated in the CUBE contest, set up a travel plan, supported low-impact mobility and rolled out an initial energy management plan. The work of the recovery plan will enable us to bolster these efforts with renovated and much more efficient buildings. We are also eager to encourage the commitment of our suppliers to move in the same direction through our procurement policy.

Julien Hans,
Director of CSTB Grenoble,
and Director of Energy & Environment



Buildings on the Marne-la-Vallée site as part of the renovation program

Major energy renovation projects on CSTB sites

The energy renovation projects launched by the CSTB for its buildings, launched within the framework of the recovery plan, represent a full-scale experimental ground applied to tools developed by their teams.

The CSTB has just launched an ambitious campaign to renovate its building stock. Following a call for projects in the French *Plan de relance sur la rénovation énergétique des bâtiments publics* (public buildings energy renovation stimulus plan), funding has been granted to it for the renovation of eight buildings on the Marne-la-Vallée site and four buildings in Grenoble, with exterior insulation, changes to woodwork, and connection to a heating network on the Marne-la-Vallée site. For the Sophia Antipolis site, which is newer (1981), it received funding to replace all its windows and switch over to LED lighting.

Full-scale experimentation

The CSTB wanted to use these works in its research activities, including the testing of renovation project management tools and measuring the performance of buildings it has developed. The KROQI building digital platform, set up in 2018 by the government as part of the Building Digital Transition Plan with the assistance of the CSTB, will be made available to project partners. This collaborative platform for building professionals enables them to work together on digital modeling and Building Information Modeling (BIM) in all phases of the building lifecycle.

Another tool developed by the CSTB will be tested on these sites full scale: SEREINE, the solution for the assessment of intrinsic energy performance of buildings developed as part of PROFEEL for residential buildings; this is part of an extension of SEREINE for non-residential buildings. CSTB teams will conduct a prework diagnosis, which will be completed after renovation by measuring performance gains.

"At Sophia Antipolis, we plan to make a digital twin of the site to manage its operations and have a testing ground for our research projects, for our partners and clients," adds Franck Andrieux, site manager.

An OsmoZ procedure by CERTIVÉA will also be launched for part of the operations to guide and implement measures for improving the quality of working life.



Focus on the environment

The CSTB has launched sustainable development initiatives on all its sites to reduce its impact and move toward greener lifestyles. Resource conservation actions, the use of renewable energy, and solidarity are the central themes of this policy and serve as a basis for raising awareness.

Overview

Helping to improve the health of employees through diet

Our company restaurant at Marne-la-Vallée has held the Biodiversity Label for some years now. It offers local, organic and seasonal dishes made of fish from sustainable fisheries.

At Sophia Antipolis, fresh fruit, organic cereal or whole bread, jams, deli meats and cheeses have replaced pastries for breakfast. The Nantes and Grenoble sites, meanwhile, have refrigerators that are replenished daily with a connection system with organic dishes and sandwiches in biodegradable packaging.

Committed to conserving biodiversity

Since 2014, the CSTB has been conservation grazing with flocks of sheep in Nantes and Marne-la-Vallée. This promotes biodiversity conservation, natural fertilization, zero waste, zero processing, less noise pollution and "zero chemicals." Insect hotels manufactured by an ESAT (network that facilitates employment of disabled workers) have been installed on the Grenoble and Marne-la-Vallée sites.

The CSTB also uses environmentally-friendly management practices for its green spaces. In Marne-la-Vallée, a panel of measures has been rolled out to respond to the government Biodiversity Plan: creation of protected areas, settling tank and separation of liquids, rainwater harvesting, planting of endemic plants (creation of an arboretum).

At Sophia Antipolis, when a tree must be felled for safety reasons or maintenance, we replant a variety of species. In addition, any plant cuttings are crushed and left on-site to enrich the soil and help reduce watering of green spaces.

Reducing waste by changing behavior

The CSTB has eliminated individual wastebaskets under desks, opting for waste separation at drop-off points in Marne-la-Vallée. This system reduces the volume of waste, improves recycling and gradually contributes in changing behavior. In Nantes and Grenoble, ELISE, a company for employees with special needs, does all the sorting as part of our policy in favor of people returning to the labor market and those with disabilities. And at Sophia Antipolis, daily sorting will be facilitated by increasing the number of waste baskets and providing improved signage. And to go even further, the Grenoble site began recycling surgical masks in early June.



TRANSITION TO A CLEANER FLEET

Cars are one of the major sources of pollution. Beyond its Travel Plan to encourage low-impact mobility, the CSTB is renewing its fleet with cleaner vehicles.

And the CSTB has further plans. The Group is considering the inclusion of four additional electric vehicles to serve as replacements or backup.



TRAVEL PLAN

The CSTB signed the French government's *Charte développement durable des établissements publics et entreprises publiques* (sustainable development charter for public institutions and public companies) and is acting to reduce business travel, facilitate videoconferencing and encourage low-impact mobility for commuting as part of its mobility policy. In 2015, the group launched its Travel Plan. Cycling, carpooling, walking and all environmentally friendly transport modes are good alternatives to the private car. There are so many benefits in low-impact mobility. For the environment, it reduces pollution, for employees, it improves health: more physical activity and better living conditions in general.



ISO 50001: THE CSTB CERTIFICATION RENEWED

The CSTB is committed to reducing its environmental footprint by determinedly addressing environmental issues related to its activities and pursuing its process of continuous improvement. Its Marne-la-Vallée and Nantes sites have been certified ISO 50001 "Energy Management" since 2014 thanks to their use of the best energy resources and efficient organization of their management. This certification confirms the establishment of a continuous improvement cycle to optimize energy consumption and adjust to current economic and social changes. This certification process enables the CSTB to make substantial gains in energy costs, its environmental footprint and competitiveness.



SECONDHAND FURNITURE

Since 2015, the CSTB has been getting part of its office furniture secondhand. In 2020, 14 pieces of office equipment were purchased like this, and already 24 in 2021. This solution helps to reduce the environmental footprint of this equipment and enables the CSTB:

- > achieve substantial savings on this expenditure (up to threefold);
- > decrease delivery turnaround (10 days for second-hand compared with 5 weeks minimum for new);
- > participate in the social integration economy.

For its used furniture, the CSTB is exploring the possibility of setting up an internal barter system.



/2

BUILDING UP

HUMAN CAPITAL AND PUTTING IT AT CENTER STAGE

The CSTB teams and their multidisciplinary skills constitute the capital of the CSTB and provide the foundation of its scientific and technical excellence, which serve public authorities and all the stakeholders involved in construction and urban planning. The CSTB's approach promotes solidarity by emphasizing diversity and the principles of an inclusive society, consistent with its values.

To ensure the development and commitment of its employees, the CSTB Group sees human capital as its top priority. It has implemented a series of measures based on sharing the group's values, culture and philosophy: diversity, equal opportunity and quality of working life, focusing on the well-being of its employees. The CSTB has also set up an agreement on strategic workforce and skills' planning to support its employees in acquiring and strengthening the knowledge most adapted to the realities of employment today and tomorrow, thereby contributing to the long-term development of the company.

In addition to developing its teams, the CSTB shares the knowledge derived from its research with professional circles and works to improve well-being, comfort and uses in buildings so that we can live together better in neighborhoods and cities.



1. CREATING KNOWLEDGE THROUGH RESEARCH AND DISSEMINATING IT THROUGH TRAINING

Teams at the French Ministry of Armed Forces trained in BIM

In 2016, the CSTB initiated a research partnership with the French Defense Infrastructure Service to develop a strategy for the rollout of BIM at the Ministry of Armed Forces as part of supporting projects to build, renovate and maintain defense infrastructure. It is continuing with new missions.

A research partnership was initiated in 2016 between the Defense Infrastructure Service (SID) and the CSTB, making it possible to develop the Building Information Modeling (BIM) strategy for property management at the French Ministry of Armed Forces. Several BIM building construction operations were launched based on experimental digitization of the existing property and the drafting of a BIM charter. A group of BIM advisors was formed and trained. The advisor of each institution provides feedback about experiences and issues regarding the use of BIM.

An enlarged body of documentation

The SID has launched some twenty BIM operations. Now, it's just a matter of disseminating the research outcomes to a broad audience. Practical guides have been developed for 6,000 service staff. Administrative and legal issues are dealt with in an initial guide that goes with the SID BIM charter, which forms the basis for the ministry's dialog with contractors working on its building and infrastructure projects. Two documents describe the technical features of the eveBIM and KROQI platforms to facilitate collaboration between all the stakeholders working on digital modeling. In addition, there is a protocol for testing BIM digital models.

Finally, a regulatory handbook provides a contract template for technical assistance to BIM project owners, and a technical guide assesses the costs and benefits of the BIM approach.

3,000 staff trained

To support upskilling of staff and ease the rollout of BIM across SID institutions, we are working with the SID Human Resources Department and CSTB Training. An inventory of BIM trades and user profiles was completed, and a training strategy was drawn up to adapt to staff based on their trades. The training plan is ready for implementation by the CSTB training team starting in 2021, with three levels of upskilling in our strategy:

- > BIM basics to promote BIM assimilation for a broad audience at the SID
- > Advanced training for the SID BIM advisor group
- > Specialized training for operations' managers, designers and maintenance staff who work with BIM at the SID.

From construction to end use

The objective of the SID is to use digital modeling to manage its existing property through BIM GEM (management, operation, maintenance).

To establish a strategic operational BIM plan, an audit of trade IT systems is underway. Once completed, they can work together through the software connected to the model.

From BIM to CIM

After using BIM for buildings, the CSTB and SID want to employ digital modeling at the scale of a military site. This means transforming BIM into CIM, or City Information Modeling.

As with the use of building data modeling, it involves modeling database data that will be viewable in the BIM digital model. "As part of new R&D work involving the CSTB, SID and French Defense Procurement Agency (DGA), this novel approach will be tried at the military site of the DGA thruster test facility in Saclay," says Thibaut Delval, Deputy Head in charge of digital applications and BIM at the CSTB. "We will model a digital twin of the site with an experimental tool connected to the Dassault Systèmes 3DEXperience platform."



To learn more
Digital Technologies - Services - CSTB Research



Digital transition: from BIM to Smart Cities - CSTB Formations
<https://formations.cstb.fr/catalogue-formations/bim-et-maquette-numerique/>



Multiscale model of the Defense Infrastructure Facility (ESID), Brest, in GéoSID



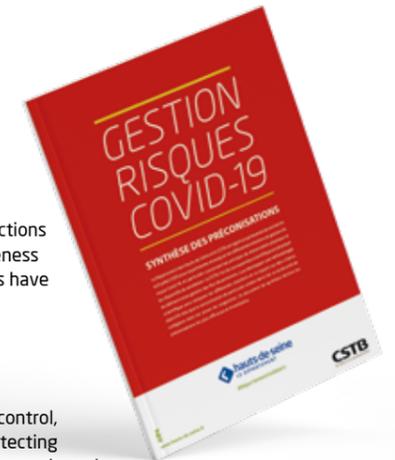
Reducing the spread of Covid-19 in junior high schools

Hauts-de-Seine county and the CSTB have teamed up to provide practical solutions to reduce the spread of Covid in junior high schools by providing principals with a good practice guide.

CSTB multidisciplinary teams are leading joint research on risk management in schools addressing:

- > mechanical and natural ventilation principles;
- > student flows;
- > classroom configurations and occupancy times.

This research program has defined nearly thirty actions to be taken, each in perspective with its effectiveness and constraints. These practical recommendations have been made available to the school principals in Hauts-de-Seine in a methodological guide. The guide is now available to everyone.



Beyond risk management through environmental control, the CSTB has developed an original method for detecting the virus in wastewater. The challenge of the tests conducted at the Georges Pompidou (Courbevoie) and André Malraux (Asnières-sur-Seine) junior high schools, with the support of the county, was to develop a simple, reliable and low-cost detection methodology that can be used on a large scale. It could be used in boarding schools, nursing homes, and as needed to monitor outbreaks.



To learn more
[Collège-covid.indd \(cstb.fr\)](https://collège-covid.indd.cstb.fr)





2. ASSESSMENTS FOR ADVANCING INNOVATION

The CSTB is participating in the Paris Games

In response to the urgency of organizing the 2024 Paris Summer Games, the CSTB and its partners have put together a multidisciplinary team in project-mode organisation to provide concrete answers to project owners.

The Paris Games are aiming for environmental excellence. These low-carbon Games are promoting the use of wood construction and development solutions. Half of the 260,000-sqm Olympic Village will be constructed with wood, half of which will be sourced in France. The structures using innovative techniques will be assessed using the Technical Experimental Assessment (ATEX) procedure.

Making it easier to access assessments of innovative techniques

The Olympic Works Delivery Company (Solideo), which is the project owner of this landmark development for the Paris Summer Games, called on the CSTB to facilitate access to ATEX for project stakeholders.

This guidance resulted in the publication of two design guides on nontraditional techniques for thermal insulation on the outside of timber-framed facades. One of the documents discusses external insulation composite systems (ETICS) on timber-framed facades/structures, which use thin beneath coatings. The second guide describes terra-cotta external cladding on timber-framed facades/structures.

These documents were written by the CSTB and Solideo in partnership with SOCOTEC. They received financial support from the Professional

Committee for the Development of the French Furniture and Timber Industries (Codifab) and the France Bois Forêt (FBF) organization as part of the ADIVbois (high-rise buildings) and France Bois 2024 projects.

A multidisciplinary team organized in project-mode

The CSTB exchanged beforehand with the groups already formed to identify the techniques that would be implemented in their projects. For ETICS on timber-framed facades, several projects included terra-cotta external cladding and coatings that required an ATEX assessment. The list of technical points to study has been determined with all the groups. The CSTB team of experts able to deal with fire safety, the environment, the envelope, humidity, publishing

and other areas was then formed around a project manager. For Estelle Vargioni, CSTB project manager, "this project organization has been very effective, with technical teams working collaboratively and across disciplines."

General interest measures

Other actions of general interest taken by the CSTB and Solideo will boost research on timber and biosourced structures and ensure that the projects of the winning teams can serve as demonstrators of innovation. One of the topics will be, among others, the installation of shower trays without an offset on wooden floors, a technique that is now regulated. A working group involving the CSTB and industrial companies was formed at the end of 2020, counting on the force of collective intelligence.



Universeine, a future sustainable neighbourhood in the heart of the Paris Games Village



Overview of the Paris Games Village



Mail Finot, design and engineering sector

Two assessment methodology guides to encourage innovation



Paris Games Athletes' Village

To make the ATEX procedure easier for stakeholders involved in the construction and urban development projects for the Paris 2024 Olympic Village, Solideo asked the CSTB to produce and publish two design guides on nontraditional techniques for timber-framed external wall insulation systems. The CSTB and Solideo partnered with Socotec, ADIVbois and France Bois 2024 to prepare the guides, which present new possibilities for timber companies and generally for timber and composite construction.

To address the project-related challenges, objectives and timelines, the CSTB set up an agile project that promotes cross-disciplinary exchange, both internally and between all stakeholders. Estelle Vargioni, a true maestro, succeeded in harmonizing diverse teams to achieve specific economic and performance objectives.

Continuing its work for the village, the CSTB is now working on a new guide for wooden shower trays.



3. PROVIDING FRAMEWORKS THAT MAKE CONSTRUCTION AND RENOVATION SAFER

The OsmoZ label in the context of Covid-19

The OsmoZ label was launched by Certivéa in 2018 and is intended to improve the quality of working life and thus serve the health and well-being of employees. It proved particularly useful for guiding the changes in environments and ways of working during the health crisis in 2020.



« The extraordinary Covid-19 pandemic we experienced in 2020 is an opportunity to reconsider where and how we work.

It has increased awareness that a number of transformations were needed and, above all, sped up changes in response," says Patrick Nossent, president of Certivéa, a subsidiary of the CSTB. With the first wave of the crisis, creating a disaster recovery plan proved a key moment in many organizations to drive and guide the transformations needed to improve and rethink ways of working and frameworks in response to this unprecedented health situation.

A context-driven label

The OsmoZ approach has proved to be a powerful tool for engineering these insights and changes inside companies, regardless of size and field of activity. It is a comprehensive, cross-cutting methodological guide to drive change and gain buy-in for the implementation of new rules. This benchmark, which can adapt fully to the context depending on the maturity of the company and the strategy, is structured around six strategic challenges: environmental health, lifestyle, work-life balance, communication and social connection, features and collaborative approach. It can also cover several levels of decision-making: construction and/or development and/or human resources policy.

A tailored response to the crisis

Specifically, at the end of lockdown, the stakes for both large and small organizations were threefold: we needed to rethink and reorganize the workplace; enhance risk prevention by promoting physical and mental health; and reinvigorate the workforce to restore economic performance.

Organizations that received the OsmoZ label before the crisis have been able to develop suitable responses more quickly by using tools already in place, with the understanding that there is no standard solution that covers the many scenarios for crisis recovery. "Of the 32 areas OsmoZ addresses, it is estimated that nearly half make it possible to respond concretely to the new working life issues created by the health crisis," says Hervé Duret, manager for Quality of Living Environment at Certivéa.



To learn more OsmoZ by Certivea



My Profile Tool - Osmoz (certivea.fr) <https://osmoz.certivea.fr/mon-profil>



Making progress in measuring intrinsic energy performance

The SEREINE project is one of nine under the PROFEEL program, which aims at promoting innovative energy savings in the construction industry. Selected in the 2018 EEC call for programs of the French General Directorate for Energy and the Climate, it is led by Agence Qualité Construction. Technical coordination is provided by the CSTB.

In this context, the goal is to put in place reliable solutions that ultimately make it possible to identify and understand the causes of nonperformance, to gradually improve the quality of renovations and upskill professionals in the sector.

SEREINE aims to advance the measurement of energy performance in buildings after renovation work and develop protocols and operational measurement devices adapted to the reality of the stakeholders, and more specifically to the context of rehabilitation.

- > **Guide** the sector with actionable recommendations to prevent nonperformance due to errors in building design or construction
- > **Enable** the acquisition and quick transfer of measurement instruments to the field and prepare the operational framework for the rollout and widespread availability of methods.



To learn more SEREINE, a project resulting from of the PROFEEL programme



- > **Consolidate** the foundation of in situ measurement methods and protocols
- > **Develop** operational hardware to implement methods for measuring performance
- > **Mobilize** these methods through experiments on the entire territory to feed the REx with the actual impacts of energy-saving renovation

QB "Window Installation Service" for verified quality of service and implementation

The CSTB listened to the market and the needs of stakeholders and created QB "Window Installation Service" certification. It enables a company that has invested in employee training and processes to have its expertise checked by an independent, recognized third party and certified to reassure customers.



To learn more QB "Window Installation Service" <https://evaluation.cstb.fr/en/certifications-products-services/product/service-pose-de-fenetres/>





4. THE CSTB COMMITTED TO IN-HOUSE CSR



The 2020 health crisis confronted us with human resources management issues in a very tangible way. Priorities were set very quickly: to preserve jobs responsibly and determine the working conditions that could allow our employees to return to sites safely. Thanks to a solid foundation for managing human capital, our values and our managerial culture, we managed to strike a balance between the priorities. While limiting furlough, we achieved these goals by formalizing our Covid guide and involving everyone in decision-making."

Maxime Roger,
Director of CSTB Nantes and the Climatology, Aerodynamics, Pollution and Purification Department

The CSTB: a public institution attractive to talent

In 2020, the CSTB ranked among the most popular public research centers among its employees according to the annual survey conducted by the magazine *Capital*.



In 2020, the business magazine published the seventh edition of its annual survey of employees in 2,100 firms with more than 500 people.

Awarded six times

With an overall score of 6.93 out of 10, the CSTB ranks No. 5 in the public research institution category whose employees have private-law contracts. For the sixth consecutive year, the CSTB has demonstrated its consistency by appearing among the top ten employers in its sector in France. This is seen as encouraging by Remi Létéinturier, Director of Human

Resources at CSTB: "We ensure a good work-life balance and have put in place a set of agreements and actions addressing equality in the workplace, remote working, disability and the promotion of diversity," he stressed. There is set of measures to meet the expectations of employees and attract new talent.

20,000 employees surveyed

This survey on the quality of employers is conducted using a tried-and-tested methodology: in the fall of 2020, 20,000 people working in companies in France with more than 500 employees were contacted online without their management's knowledge.

They were asked to rate their employers on a scale of 0 to 10 and do the same for a list of other employers in the same sector.

The calculation of the overall score out of 10 naturally gives stronger weight to the opinion of employees of their own companies. Finally, the top 500 groups out of more than 2,100 were chosen.



WELL-BEING AND HEALTH OF EMPLOYEES

The CSTB's commitment is illustrated by its significant actions in human resources. Improvement of the workspace to make it more comfortable, organisation of opportunities for regular sharing and implementation of risk prevention measures in recent years has enabled the group's employees to feel fulfilled in their working environment.



CLOSE-UP ON THREE ACTIONS

EATING BETTER

Food is the key to good health. The CSTB guides its employees in how to eat healthily: nutrition coach, balanced breakfast, vegetable buffet and smoothie tasting once a week, among other actions. All while raising awareness of invisible disabilities, such as diabetes.

OSTEOPATHY

Initiated several years ago, the campaign for the prevention and care of musculoskeletal disorders for CSTB employees in Marne-la-Vallée and Nantes allows them to go to osteopathy sessions for "long-term" care or just to relieve occasional strain. In 2019 and 2020, 870 sessions took place during working hours.

SMOKING

In 2020, 27 MAF (Motivated to Stop Smoking) employees enrolled in the program offered by the Health & Safety Division of the CSTB. They showed strong motivation for success in smoking cessation.



THE CSTB RANKED "TOP EMPLOYER" BY YOUTH

Based on the opinion of its interns and apprentices, the CSTB was awarded the Happy Index Trainees label in 2020. This certification recognizes companies where students are the most motivated and happiest. We thank them for their participation and positive feedback.



CSTB Day, June 21, 2019

FRIENDLY ATMOSPHERE FOR CSTB DAY

On June 21, 2019, on all CSTB sites, nearly 615 employees participated in activities aimed at bringing together everyone around cross-disciplinary cooperation. On this occasion, the business plan was shared so that all employees could learn about it and take ownership. The schedule included collaborative workshops, muscle toning, quizzes and more. The 2019 edition was all about cross-disciplinary cooperation; 2021 is dedicated to corporate social responsibility.



BEING A PHD STUDENT AT THE CSTB

On average, 60 young researchers are trained in research and innovation in the CSTB doctoral program. The work is performed as part of collaborations between the CSTB, university laboratories and graduate schools, leading to defense of a thesis. The dissemination of work takes place through scientific publications and communications. To promote doctoral research and projects and foster exchange, the CSTB organizes one day a year to bring together its doctoral students, CSTB researchers, research partners and guests. In 2019, young researchers had fun presenting their work in 180 seconds. Ninety-five percent of our doctoral students find employment within a year after their defense, and 32% pursue a career at the CSTB.

CSTB PhD Day





/3

ASSERT OURSELVES

AS AN INDEPENDANT AND ETHICAL GROUP WITH A LOCAL PRESENCE

The CSTB is committed to respecting and enforcing ethical compliance in all aspects of its internal relationships and with all its key audiences. Driven by scientific and technical considerations based on advanced scientific and technical knowledge and taking into account the environmental, economic and social contexts of construction, the CSTB adheres to fundamental principles and values: **objectivity, societal responsibility, transparency, sharing and confidentiality, a duty to alert and scientific and technical quality.**

The CSTB is committed to performing its missions free of any conflict of interest likely to influence its judgment and compromise its objectivity. In 2014, it established an Ethics Policy and Charter to guide its practices and its obligations to society, clients and the professional community. The policy is administered by internal and external committees that make it possible to seek external opinions if there is any doubt about a risk of conflict of interest.

In its day-to-day tasks, the CSTB responds to the end user's societal concerns by generating and disseminating knowledge. It considers the environmental, economic and social aspects of buildings as part of neighborhoods and cities to advance scientific debate and dialog and to improve living spaces and the environment.

The CSTB ensures the transparency and traceability of its sources, the quality of its knowledge, the clarity of its methods, the rigorous precision of its reasoning, and the neutrality, clarity and transparency of its procedures. It aims for transparency and independence as it develops its facilities around France. Belonging to local networks enables the CSTB to create strong ties where it operates, making it an important part of economic life.



1. CREATING KNOWLEDGE THROUGH RESEARCH AND DISSEMINATING IT THROUGH TRAINING

Recycled materials for sustainable sanitary piping systems

The use of polymer sanitary piping systems incorporating recycled materials is encouraged by the regulations. To assess their service life, the CSTB has designed a test method specifically for these materials.

Regulations now require that a certain percentage of recycled materials be used in construction works. This also applies to the sanitation sector, and manufacturers have been working in recent years to increase the proportion of recycled raw materials in their products. The proportion can be up to 30% in sanitary piping systems. These products must have the same as products made with virgin materials. Currently, manufacturers have no access to Technical Appraisals, and the materials remain noncompliant with best practices because there is no certification of their performance, including service life. The CSTB wants to work with local territories and authorities to resolve this issue.

50 years

The CSTB is therefore conducting research on the durability of polyethylene and polypropylene sanitary piping systems. The goal is to check whether their service life reaches the fifty years required by current standards. "The molecular chains of recycled polymeric materials are shorter than those of virgin materials, resulting in a different service life," explains Abdel Lakel, Head of the Sanitary Assessment Unit at the CSTB and Cross-Disciplinary Project Manager for "Water" R&D planning. There are many conventional methods for simulating the aging of new piping system material, which consist in conducting temperature (e.g., 80°C) and pressure tests to extrapolate

their behavior in fifty years. However, unlike drinking water systems, drainage systems are usually gravitational and not under pressure. It is not necessary to perform pressure tests for these products.

A non-pressure test under realistic conditions

A new method was developed consisting of keeping a series of test pieces submerged under mechanical stress in a solution closely resembling wastewater and then heating them to simulate aging. The series of test pieces contain recycled material in proportions ranging from 0% (virgin material) to 100%.

This process is more precise in its stress conditions and measurements, and required the creation of a new specific test bench as part of a technological and experimental research program. The test bench was validated, and the supply of products by industrial members of the Polyethylene and Polypropylene Tubing and Fittings Union (STREPPP) is underway. The tests on these products will determine the optimal formulation for maintaining fifty-year durability. Polyvinyl chloride (PVC) will also be tested.



Test bench developed by the CSTB - Flexible coupling test



Solidarity initiatives for stakeholders involved in construction and urban development

The building industry is essential to the economic life and functioning of the country and must be able to continue its activities under the best possible health conditions, despite the Covid-19 crisis.

While the safety of on-site employees is the first priority, the quick recognition of the economic difficulties caused by this unprecedented situation is also essential. That is why the CSTB wanted to guide all construction and urban development professionals by providing three key tools free of charge to help with their tasks: REEF (document repository for technical and regulatory news), ELODIE (benchmark tool to calculate the environmental performance of construction projects) and SED Express (online service to perform dynamic energy simulations of construction projects simply and quickly). Usually subscription based, these tools were offered for free on the Batipédia website from the start of the first lockdown until the end of May 2020. The "CSTB in Solidarity with Construction and Urban Development Stakeholders" action received a warm welcome. More than 3,500 professionals used at least one of the three tools for free during the first lockdown period.



2. ASSESSMENTS FOR ADVANCING INNOVATION

A framework for safe reuse of demolition waste

A research workshop of the Fondation Bâtiment Énergie, coordinated by the CSTB and involving the MECD Institute for the management of a project on reuse, has developed eight guides to increase the reliability of residual performance of eight product families for their reuse in new construction after removal from demolition sites.



Because the building industry is resource intensive and produces a lot of waste, it is an important sector for the circular economy. The CSTB is working with its partners to advance the reuse of building materials. Recycling programs for demolition waste are gradually being set up, and the reuse of components is gaining momentum.

Insurability

Bricks, windows and wooden floors are removed from demolition sites and used on construction sites, either directly or after passing through a third reconditioning site. How do you demonstrate their performance for insurance purposes?

Under the auspices of *Fondation Bâtiment Énergie*, a research and development project coordinated by the CSTB was launched to develop the scientific basis for the circular economy applied to construction and, in particular, to the reliability of residual performance of products destined for reuse. The topic is complex because of the wide variety of products, materials and equipment and the levels of performance to be analyzed, as well as the conditions of aging specific to each situation.

Harmonizing practices

The time had come to progress from site-by-site analysis and offer a shared methodology that would precisely characterize the performance of materials intended for reuse. The project working group proposed focusing on a few product families and developing performance characterization guides for specific products.

The aim was to specify, for each target product family, various performance levels that must show suitability for future use, the types of evidence that can be used to characterize each performance level and the precautions to be taken, from selective removal to restoration of products.

8 product families

Eight guides were created, covering the following products: bricks, industrial timber frames, metal framing, exterior woodwork, wooden floors, suspended ceilings, attached natural stone facade coverings and terra-cotta tiles.

They constitute the first step toward the recognition of reuse practices, with the aim of guiding their development. "These guides will help the rehabilitation and reconditioning sectors to organize," said Sylvain Laurenceau, Circular Economy Manager at the CSTB. Once they have familiarized themselves with the guides, these new tools can help for recognizing practices as standard techniques." Meanwhile, other product families are being identified to create new guides and support the development of recycling channels.

A certification for modular construction

The modular construction industry is undergoing a major overhaul and taking the lead in a new market: permanent works.

In early 2019, the ACIM (Association for Industrial and Modular Construction) asked the CSTB to raise awareness in project owners, insurers and technical inspectors of the many advantages of this architecture, which offers complete flexibility, including configuration changes over time at contained costs. The CSTB is always responsive to the needs of stakeholders and, in late 2019, offered the ACIM innovative certification of both products and services. Through classification, it will provide clarity on the performance of the modules manufactured, including their environmental performance, and will highlight the skills of industry stakeholders, which, in addition to manufacturing, are required to participate in the design phase and install prefabricated modules. The CSTB's multidisciplinary approach enabled it to draw on the complementary skills of its teams, making this project feasible. Cross-disciplinary cooperation is a key to success. The first certificates are scheduled for publication in late 2021.



Les Pays des Olonnes Eye Clinic, Les Sables-d'Olonne



La Plage Bar and Restaurant, Le Veillon



To learn more Certification - CSTB



Products & services - Certifications - CSTB Evaluation <https://evaluation.cstb.fr/en/certifications-products-services/>



3. PROVIDING FRAMEWORKS THAT MAKE CONSTRUCTION AND RENOVATION SAFER

Sanitary tapware: clearer ECAU classification

The new ECAU classification label for sanitary tapware allows you to choose the right product for each use at a glance. It assists specifiers and the public in selecting products with performance tailored to their needs.



« There is a broad selection of sanitary tapware on the market," says Laurent Rousseau, Head of Sanitary Tapware Certification at the CSTB.

Products are increasingly technical and demonstrate varied performance depending on where they are used, such as kitchen sinks, washbasins, bidets, showers and bathtubs. Choosing is not easy." Nonetheless, the display on products with ECAU classification had not changed since its creation in 1982. When asked by the CSTB, manufacturers and distributors said it was accurate but too geared to professionals and difficult for consumers to understand. CSTB therefore began work to simplify communication by moving toward new labels. The ECAU designation and the specific performance levels associated with it were kept because they speak to professionals and are used in the specifications created by specifiers.

However, the labels on product packaging show the classification codes for household appliances, clear, intuitive and familiar to consumers.

Colors and pictograms

Recall that the ECAU classification of sanitary tapware, which is voluntary and complementary to NF077 certification, is based on four technical performance criteria that make it possible to choose based on characteristics:

- > **E (as in Economize)** to save water based on faucet flow rate;
- > **C (for Comfort and Energy Savings)** represents product design characteristics by emphasizing the concepts of ergonomic comfort, water saving system and hot water saving, therefore energy savings;
- > **A (for Acoustics)** specifies the noise level of the tapware;
- > **U (for Wear)** characterizes the service life of moving components.

The four performance criteria are now represented by straightforward pictograms and a rating scale from A to D (A being the highest rating) combined with four colors ranging from dark green to orange, with light green and yellow in between. The details of the technical score for each criterion remain for professionals.



To learn more
ECAU - Certifications - CSTB Evaluation



To learn more
Expert words

Successful MOOC training courses

In 2020, following the success of the first three MOOC sessions on E+C- Experimentation (E+ for positive energy, C- for carbon reduction), CSTB Training offered a fourth session during lockdown.

The session welcomed more than 1,600 registrants who used a variety of educational content formats and engaged in interactive activities. In 2021, a MOOC for project managers will be offered focusing on the new French environmental regulation for new buildings, called RE2020. It will be hosted on the MOOC Sustainable Building Design platform, which has renewed its trust in the CSTB.

8,875 registrants



85% satisfaction rate



95% recommendation rate



7 training modules



23 interactive learning activities

2 YouTube Live streams



172 forum discussions



59 educational videos



Dissemination of knowledge - CSTB





4. THE CSTB COMMITTED TO IN-HOUSE CSR



2020 was a special year that forced us to take a close look at the way we work. Despite this health crisis, 2020 increased some of our uses. It also changed our habits and ways of working, both internally and externally with our partners. Everyone played their part.

The situation created many constraints that required the development of remote working and increased the use of digital technology in our activities. One result is that we reduced our carbon footprint by traveling less. Some distances have been eliminated, and our relationships with the territory where we operate have been strengthened. The CSTB at Sophia Antipolis long built strong ties with local companies.

We have been an active member of Sophia Club Enterprises for several years to share common issues and develop collaboration. Our presence also enables us to guide the highly visible digital sector in this region and to be equipped with unique facilities in France, such as the Le Corbusier immersive room and the semi-virtual laboratory for tests and simulations in environments close to reality."

Franck Andrieux,
Director of CSTB Sophia Antipolis and, Assistant Director Information Technology Directorate

A widely shared Ethics Charter

The CSTB's ethics policy served as the guarantee of its objectivity when changing assessment procedures to continue working through the pandemic.

The ethics policy implemented in 2015 demonstrated its effectiveness throughout 2020, which was marked by the Covid health crisis. The situation made it necessary for the CSTB to adjust its assessment procedures. So, we took a novel approach to provide ongoing services to assessment clients by replacing plant audits and sample tests with remote consultations during lockdown periods while maintaining exacting standards and ensuring a fair response to all clients. Thus, nearly 50% of our certification audits were conducted remotely.

Training for all

The training of CSTB employees who could be exposed to risks of conflicts of interest continued during this unusual year, adapting to the demands of distance learning. "Once awareness has been raised, employees do not hesitate to consult our service when in doubt," says Céline Hecquet, Director of Quality and Ethics. The CSTB was able to count on the support of its external business ethics committee during this period. The six external experts on the committee guide and support the CSTB in ensuring full compliance with its ethics policy and preventing conflicts of interest. Every year, it issues a report on its missions addressed to the Board of the CSTB. It is available to all individuals and legal entities.

A living charter

The basis of the policy put in place by the CSTB is the Ethics Charter, which describes the six fundamental and inseparable principles that apply to all the activities of the CSTB: objectivity, societal responsibility, transparency of its scientific and technical sources and methods, sharing of knowledge acquired as part of its public missions and confidentiality of its private contracts, the duty to alert concerning public health and the environment, and the scientific and technical quality of its staff.

The Charter is expected to evolve in 2021 after the redefinition of the company's missions and values. It will be structured around the five core values in the CSTB business plan: responsiveness and service to clients, scientific and technical excellence and rigor, objectivity and transparency, societal and environmental responsibility, and openness. This updated version is an opportunity for wide dissemination to raise awareness among all staff. Training will take place on an e-learning platform for thousands of employees of the CSTB Group.



To learn more
Ethics - CSTB



OBJECTIVITY AND TRANSPARENCY

The CSTB is organized around an "integrated" model mixing public services, sometimes as a monopoly, and commercial activities. This status exposes the CSTB to risks of misuse and misunderstanding on the part of its clients. There is a lot at stake. The CSTB must be beyond reproach from an ethical point of view in order to safeguard its organization and approach.

The role of the external business ethics committee is to examine both general problems and specific subjects submitted by management. It also monitors implementation of the business plan in accordance with the principles of the Ethics Charter. To follow good practices over time, guide all employees, demonstrate a robust system of values and create pride of belonging at the CSTB, the committee stresses the need for in-house awareness raising and training in ethics and its issues, which has already been implemented by the CSTB."

Pierre Graff,
Chair of the External Business Ethics Committee



Diversity Charter

The CSTB has been a signatory to the Diversity Charter since 2018, undertaking to implement concrete actions in favor of equal opportunities and diversity, such as raising awareness in and training its leaders and managers, promoting the application of the principle of nondiscrimination, supporting the representation of the diversity of French society, communicating its commitment, making the development and implementation of the diversity policy a topic of social dialog and regularly assessing progress.

Find out more

To sustain this commitment every day, the CSTB has put in place a multiyear action plan setting out all the measures for each of its six commitments. Among these measures, the construction and rollout of two e-learning training modules: the first for all current and new employees, and the second dedicated to managers to encourage and support them in the day-to-day management of their teams and, from the moment of hire, good managerial practices that favor diversity. The objectives of this module are to enable us all, employees and managers, to better understand the concept of discrimination and the phenomena that feed it, to guard against it and adopt the right behaviors.



DISABILITY

The CSTB is a signatory to an corporate agreement for the employment of people with disabilities, valid until 2023, and guides employees who face health problems recognized as disabilities, from administrative procedures to concrete actions to adapt workstations. In particular, awareness campaigns have been launched.



HANDI'SIMUL & "SIGN YOUR COFFEE"

Organized in 2019 at the Marne-la-Vallée and Nantes sites, the Handi'simul exercise brought together nearly 45 employees to participate in a workshop to simulate eight types of disabilities and better understand their everyday implications. As part of the "Sign Your Coffee" activity, participants learned sign language for ordering a cup of coffee... and enjoyed it in silence.

DUODAY

In 2019, the CSTB participated in DuoDay for the first time. The idea is that an employee of the CSTB volunteers to welcome a job seeker with a disability and shows them what they do at the CSTB. For this first edition, Karin, Elias and Sarah greeted three people with disabilities. One of the job seekers was later offered regular temporary assignments at the CSTB. Building on this first experience, the CSTB repeated it in 2020 and plans to continue it in the coming years.



HUMAN RESOURCE PLANNING AND CAREER MANAGEMENT

Training, skills development and coaching for career development at the CSTB are key elements for human resource management to support the expansion of the Group in line with the business plan.

It is against this background that the CSTB signed a strategic workforce planning agreement in 2020 to prepare for changes in the workforce and skills, acquire collective tools, guide recruitment, integration and training, and support its employees in their career paths. In addition to the commitments made, a number of key indicators will be examined throughout the term of the agreement, and the committee that has been set up and regularly consulted will monitor its performance and provide possible areas for improvement.

LOCAL PRESENCE

The CSTB supports the development of environmental efforts within local territories. In 2018, the Group formed a three-year research and development partnership with the city of Grenoble on strategic topics for its territory, such as thermal insulation renovation for the residential building stock, urban lighting, air quality and the circular economy. The CSTB believes that the territorial ecosystem must be a place of solidarity at the service of the community. The Sophia Antipolis site is thus a member of the Sophia Club Entreprise, which brings together local organizations in the building industry that share a vision of the advancement and economic development of the territory. Finally, the CSTB wants to contribute to the maintenance and development of the territories where it is located. On the Nantes site, for example, it is partnering with a local company to make fresh, local and seasonal dishes available to employees, as well as subscriptions to baskets of organic, local vegetables and fruit.



Le Corbusier immersive room at Sophia Antipolis

2020: A BUSY YEAR FOR RECRUITMENT

In 2020, despite the health crisis, the CSTB continued its recruitment with more than 200 contracts signed. The CSTB Group is committed to developing and diversifying its channels to attract and recruit the best talent and train and employ youth, with 52 interns and 34 apprentices welcomed. After the recruitment phase comes the onboarding phase, which is crucial to building rapport and guiding our new recruits in our corporate culture. In 2021, we are working on redesigning the entire onboarding process to improve the employee experience.





A public company serving its clients and the public interest, the CSTB is envisioning the buildings and cities of tomorrow by guiding and making safer sustainable construction and renovation projects to improve the quality of life of their users, while anticipating the effects of climate change.

2020 Key Figures

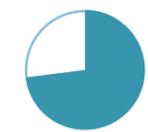
As at December 31, 2020

STAFF (excluding subsidiaries)

971 employees



Teams in 4 facilities:



713
Champs-sur-Marne



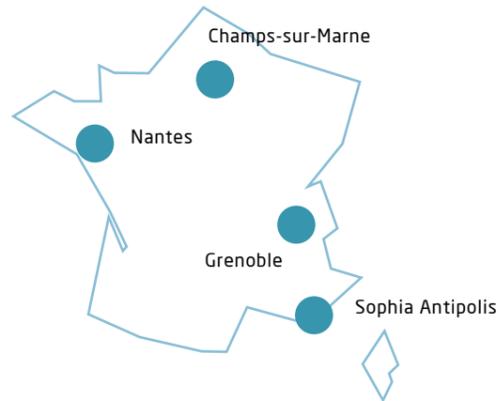
95
Grenoble



93
Nantes



70
Sophia Antipolis



2020 OPERATING INCOME (excluding subsidiaries)

€117.5 M
Operating income



+ To learn more
Key Figures - CSTB



RESEARCH AND EXPERTISE



€40.16 M
External revenue

21
CSTB research projects

56
scientific publications

65
PhD students

25
patent clusters

196
researchers



€11.88 M
Contract research and expertise with private clients



€14.13 M
Contract research and expertise with public takeholders



€14.13 M
Capitalized production from appropriations



€0.02 M
Other subsidies

TECHNOLOGY-RELATED ACTIVITIES

100
ATEX (Technical Experimentation Assessment)

Product certification
4,966
certificates



709
ATec/DTAs published

1,592
holders
(52% from abroad)

38
ETAs (European Technical Assessments)

CE marking
562
certificates

All types (excluding modification to extend validity date), including 117 "New" types and 100 revisions initiated by committees

323
holders
(13% from abroad)

Average 2020 Technical Appraisal procedure time: 8.2 months

DISSEMINATION OF KNOWLEDGE

42,166
subscribers to the technical and regulatory information service*

144
publications available

23
training courses, Premium and Become an Advisor

88
digital publications

17
training courses, all or part digital

151
training courses, including 58 new or updated

14,376
hours of training completed



* Number of Batipédia user accounts: activated and active accounts

CSTB teams are at your disposal at

WWW.CSTB.FR/EN/



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Architectes secteur sud; Atelier d'architecture Chaix & Morel et associés/Tripbyque architecture; Jacques Girat; Nicolas Richez; Tulipes & CIE; PIX MACHINE/Franck Gallen; Florence Joubert