



# EUCENTRE

FOR YOUR SAFETY.



## The Founders



**PROTEZIONE CIVILE**  
Presidenza del Consiglio dei Ministri  
Dipartimento della Protezione Civile



**ISTITUTO NAZIONALE  
DI GEOFISICA E VULCANOLOGIA**



**IUSS**

Scuola Universitaria Superiore Pavia



**Università degli Studi  
di Pavia**

## Eucentre certification and accreditation

Quality certification ISO 9001:2015



Accreditation UNI CEI EN ISO/IEC 17025



**ACCREDIA**  
ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1650 L

# 20 years of Eucentre

Inhabiting the planet and modifying it to improve people's quality of life, passing on cultural heritage, and preserving testimonies of the past, managing infrastructure networks, constructing increasingly ambitious buildings, and supporting development without depleting the planet's finite resources. These are foundational values of civilization. However, human activities and natural events are among the causes that threaten these values. Today, scientific knowledge, technological capabilities, compliance to regulations, and corporate ethics can help mitigate the risks that what we build will be destroyed.

Eucentre play its role in the context of earthquakes, which have always been among the most catastrophic and unpredictable events experienced by humanity. Eucentre achieves this by developing numerical methods and experimental tests that enhance the ability of structures and infrastructures to withstand earthquakes, reducing damage to people and property, whether they are buildings, technological structures or cultural heritage.

For twenty years, Eucentre has been growing, investing, educating, designing, building, and interpreting the world of earthquake engineering. Today, it is one of the leading research centres in the world in this field. My wish for Eucentre's twentieth anniversary is to continue growing while steadfastly maintaining its mission to create value in the field of safety for society.

*The President*  
**Riccardo Pitrabissa**

The 1988 World Conference on Earthquake Engineering was held in Japan, in Tokyo and Kyoto. I attended and then stayed for a couple of months as a guest of Professor Takanashi, who had invented pseudo-dynamic testing a few years earlier, and Masayoshi Nakashima, who was a few years older than me.

I was staying at the Building Research Institute (BRI) of the Ministry of Public Works in Tsukuba, where the other major public laboratory, the Public Work Research Institute (PWRI), is also located. Until that moment, I only knew the laboratory of Pavia, where work was very artisanal, and the one at the University of California, Berkeley in Richmond, where test specimens were built by students, from concrete preparation to bending and tying of rebars.

In the two Japanese laboratories, only professional technicians worked, in a clean environment that required removing shoes to enter the lab. I began to wonder why there was not a laboratory like that in Italy, where tests were taken seriously, not just as a training activity.

In 1992, I coordinated the first major European project to support the development of Eurocode 8 (PREC8), which had a twin project dedicated to experimental testing to support theoretical development. This second project was called ECOEST and included laboratories in Athens, Bristol, Saclay, Lisbon, and Ispra. I realized that the situation was not very different in other European countries.

When the opportunity to create a new laboratory arose in 2003, I did not hesitate: it had to be the one I envisioned, with great flexibility regarding the tests that could be performed and a strong focus on the professionalism of the people working there.

It was a bet that paid off: the competence of the technical team is the fundamental element that raises the quality level of the tests performed. In turn, testing every day does not cause fatigue, but rather a progressive reduction of errors.

For twenty years, Eucentre has been continuously growing and has become the world reference for experimentation in the seismic field.

The activities of managing large databases, the understanding of hazard, vulnerability and exposure, the ability to produce real-time scenarios, have grown around the core of the experimental hardware.

PhD students have great training opportunities, alongside experienced technicians.

It is my belief that, today, there is no facility in the world that can compete with Eucentre.

*Scientific Director*  
**Gian Michele Calvi**

# The Mission ]



# Build safety, live in a safer future

**Safety is one of the main values for the human beings of the 21<sup>st</sup> century**, safety for one's life, possessions, children, culture, and future. Safety is often considered a right. With the extraordinary impact of technology in our lives, life expectation has increased, together with a concern for the threats to this worthy ambition. Eucentre was born to focus on safety as a value, to mitigate the risk that natural events, especially earthquakes, can damage the houses we live in, the places we work in, the streets and the infrastructures we use and with them our values and affections. Earthquakes cannot be predicted, we only know that some regions of the earth are more subject than others to such natural events. We only know what could happen in those circumstances to the structures that humankind has built in those places.

In this context, risk scenarios indicate how structural vulnerability combined with the probability of a natural disaster can cause collapse and destruction, threatening our safety. **Earthquake engineering and applied seismology contribute to evaluate the vulnerability of buildings**, the probability that

a seismic event occurs and any losses that it may cause, estimating a global and integrated risk. Earthquake engineering can also provide indications on how to mitigate such a risk by reducing the vulnerability with interventions on structures and non-structural elements. Italy is a country with a high seismic hazard, it has a widespread heritage of buildings and infrastructures and owns one of the most important cultural heritage in the world; all this together constitutes an incredible asset both public and private, both historical and artistic. Therefore, it is in the best interest of everyone, citizens, institutions, industry and cultural stakeholders, to protect the country by ensuring adequate control of the risk associated with natural disasters. For this reason, in 2003 the Italian Civil Protection Department, the University of Pavia, the University School for Advanced Studies (IUSS Pavia), and the National Institute of Geophysics and Volcanology (INGV) established in Pavia the European Centre for Training and Research in Earthquake Engineering, which then transformed, in 2005, into the Eucentre Foundation, whose mission is **to create value for its Founders and for the Country in the field of safety engineering**.

Eucentre aims at promoting and sustaining training and research in the field of natural and manmade risk mitigation, as well as more generally in the field of civil protection, through the following actions:

- applied research in the field of earthquake engineering, with a view to improve existing practice in assessment and reduction of seismic vulnerability and risk;
- support work towards the development of guidelines for both practitioners and governing bodies, bringing international state-of-the-art into Italian design codes and regulations;
- scientific and technological consultancy, at both national and international levels;
- training for practitioners and technicians.



# The ] History ]



# Eucentre, an international landmark for earthquake engineering

Earthquakes and natural disasters have always been a characteristic of the Italian territory, as well as of many other regions of the planet. The impossibility of predicting with certainty an earthquake and its released energy makes it necessary to activate all the processes aimed at limiting the damage caused to buildings, people, everything of value to the territory. **In 2001, the ROSE School for higher education in the mitigation of natural risks was established in Pavia.** In 2002, the earthquake of San Giuliano di Puglia caused too many young victims and the Italian Civil Protection Department reconstituted the National Commission for the Forecasting and Prevention of Major Risks with the task, among others, of defining recommendations for the reduction of seismic risk. Consequently, **in 2003 the Eucentre Association and the ReLUIS Network of the University Laboratories of Seismic Engineering were established** with the aim of studying both the effects of seismic ground shaking on buildings, as well as damage reduction methods. **In 2005 the Eucentre laboratory was inaugurated and the Association became a Foundation.** From that moment on, the development path of the Eucentre Foundation began, thanks to the active collaboration with the Founders, with the territory, with other national and international stakeholders and with many research partners. Some important dates are:

- |      |   |      |   |
|------|---|------|---|
| 2006 | The ROSE School launched an Erasmus Mundus MSc programme and Eucentre inaugurates a new facility for higher education.  | 2017 | Eucentre inaugurates the 6D laboratory with a six degrees of freedom shake table for tests on non-structural elements, as well as the new mobile laboratory for in situ tests.  |
| 2007 | Inauguration of the Cardinal Agostino Riboldi (CAR) College, with its 55 mini-apartments.   | 2018 | Eucentre supports the Italian Civil Protection Department in the post-earthquake emergencies of Ischia and Etna municipalities.   |
| 2008 | The first edition of the ROSE Prize is awarded to Nigel Priestley, the ROSE School co-founder and the scholar after whom the prize has been named since 2016.   | 2019 | Eucentre is among the founding members of the Italian Centre for Research on Risk Reduction CI3R promoted by the Italian Civil Protection Department, composed of authorities and research centres with the purpose of creating a multidisciplinary skills' network to perform some prevention and preparation activities for the civil protection. |
| 2009 | Eucentre supports the Italian Civil Protection Department in the realization of the C.A.S.E. project following the L'Aquila earthquake. Eucentre wins the hosting of the Secretariat of the GEM Foundation (Global Earthquake Model), an initiative of the OECD. The first issue of the journal Progettazione Sismica is published. | 2020 | The organization of the 18th World Conference in Earthquake Engineering is assigned to Italy by the International Association for Earthquake Engineering. It will be held in Milan in 2024 (WCEE2024). Eucentre is Technical Partner of the event.  |
| 2011 | The UME (Understanding and Managing Extremes) School is created, expanding the fields of the Rose School.   | 2022 | The new nine degrees of freedom testing system is inaugurated, created within the 6D laboratory thanks to funding obtained from IUSS Pavia as part of the MUR "Departments of Excellence" initiative. This system, unique in the world, renders it possible to reproduce inter-story displacements that can occur during an earthquake.             |
| 2012 | The Nascimbene section of the College is inaugurated, thus increasing the hospitality offer for students, professors and researchers. Eucentre supports the Italian Civil Protection Department in the post-earthquake emergency of Emilia Romagna.   |      |   |
| 2014 | Eucentre participates in the establishment of the Foundation Cluster Technologies for Smart Cities & Communities - Lombardy. Eucentre stipulates a multiyear contract with the NAM Consortium (Shell and ExxonMobil) for the experimental characterization of the seismic response of buildings in the Groningen area (NL).         |      |   |
| 2015 | Eucentre participates in the constitution of the SPONSE Association (International Association for the Seismic Performance of Non-Structural Elements).   |      |   |
| 2016 | Eucentre supports the Italian Civil Protection Department in the post-earthquake emergency of Central Italy.  |      |   |



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# The Innovation: ] the Laboratories ]





# Predict impacts, calculate risks, design solutions

The assets of Eucentre are the relationship with the four Founders, the staff and the laboratories. Over 100 people who work and collaborate with Eucentre constitute a set of professional, scientific and cultural expertise that have allowed the growth of the reputation and the role of Eucentre at national and international level in the field of earthquake engineering. Naturally, this growth was possible thanks to the availability of **laboratories that represent singularly and as a whole a qualified structure of research activities and services, unique in Europe and among the first in the world.** There are 4 Eucentre laboratories:

## ShakeLab

- a mono-axial (7 x 5.5 m) shake table able to reproduce any seismic event that has been occurred to date, on large dimension prototypes and full-scale buildings;
- a bi-axial bearing tester system for testing of full-scale bearing and isolation devices, with 5 degrees of freedom;
- a 3D strong floor-reaction wall system that allows the execution of pseudo-static and pseudo-dynamic tests, on prototype of large size, with load application according to the three main directions.

## 6DLab

- a multi-axial (4.5 x 4.5 m) shake table for the study of non-structural elements performance. Components of electrical systems and machines, fixing systems, fixtures, furniture, countertops, panels and facades are among the systems that can be certified through experimental tests on the 6DLab shake table;
- a nine degrees-of-freedom testing system that combines the six degrees-of-freedom simulator and a three degrees-of-freedom cantilevered platform (at 4 m height) to evaluate the acceleration effects and the inter-storey displacement on sensitive structural and non-structural elements;
- system for testing large dampers and dynamic restraints.

**MobiLab**, is a fully autonomous system, unique in the world, designed to perform dynamic tests on site. The performance capabilities of the equipment allows the execution of in-situ static and dynamic test on structures, including building and bridges. In addition, the system can be used to generate seismic shaking in situ aimed at calibrating numerical models of structural types or soils that are difficult to reproduce in the laboratory. As an alternative, once connected to existing testing laboratories, the mobile laboratory can significantly increment their testing capacity.

## DataLab

Over the years, Eucentre has developed skills and experience in the creation, integration, and optimization of advanced technological software tools in the fields of structural and earthquake engineering, as well as emergency management. The applications are generally web-based and currently cover the following areas: webGIS systems for data and scenario analysis; management systems to support population during and after emergencies; documental repositories (e.g., archiving and documental workflow management according to regulatory standards); creation of annotated photographic databases for generating machine learning datasets for automatic recognition of structural damage; modeling and numerical analysis with multi-level knowledge formulations of infrastructure projects; calculation and reshaping of structural reinforcement system.



# The ] Expertises ]



# Innovative approaches for understanding and mitigating seismic risk

Eucentre develops research activities focusing on the main earthquake engineering topics and, more broadly, on risk reduction, using both laboratory experimentation and numerical analysis to study and improve the seismic behaviour of structures and non-structural elements, to investigate and implement innovative seismic retrofitting methodologies and techniques, to study soil dynamics, soil-structure interaction, and local seismic response. These activities are aimed at stakeholders (the Founders, companies, institutions, etc.) and shared with partners (again the Founders, universities, and research institutions) and refer to the following research areas:

## **Hazard, vulnerability and risk assessments**

The long-standing experience of the Foundation in earthquake engineering has been oriented towards seismic micro-zonation with probabilistic and deterministic methods, the drafting of hazard maps both for shaking and for co-seismic effects such as liquefaction and slope instability, the vulnerability assessment of structures and infrastructures at different geographical scales. The definition and mitigation of cascading effects is added to the assessment of the expected damage following an event. Eucentre takes advantage of a data lab for the realisation of platforms (mostly web-based and with a GIS interface for visualizing spatially distributed data) for defining intervention priorities in mitigation programmes and for emergency management.

## **Seismic vulnerability of structures**

Eucentre deals with the reduction of the seismic vulnerability of reinforced concrete and precast structures, steel structures, masonry structures, timber structures and infrastructures and the consequent development of all the activities useful for the definition of guidelines and regulations. The scientific and technological collaboration activities are carried out in the context of analyses, tests and modeling of such structures and infrastructures through advanced and simplified approaches in order to define intervention priority on buildings and infrastructures.

## **Seismic certification of industrial products**

Eucentre is a reference point for the study of the seismic behaviour of structural components (such as isolators and dampers) and non-structural elements (such as fastening systems, energy distribution systems, walls), which are the result of an industrial production

process. The knowledge acquired over the years allows supporting the needs of national and international companies in the development, prototyping and qualification of their products. Eucentre also provides support for the certification of industrial products. The experience gained in this field has allowed the Eucentre laboratory to become a notified body for the execution of EN 15129:2009 tests and to be accredited by ACCREDIA according to the EN 17025:2018 standard. The expertise also includes the development and installation of innovative structural monitoring systems supported by the Eucentre cloud platform.

## **Development and implementation of experimental techniques**

Eucentre is dedicated to the development and implementation of new experimental techniques for the study of structures and non-structural elements, and it aims to collaborate with companies, institutions and research bodies as a partner for the study of efficient solutions targeted at optimising performance and improving the reliability of result. Eucentre's mission is to design and implement experimental tools and laboratories for earthquake engineering and to contribute to the training of specialists and technicians in the field of the experimentation dedicated to the study and prevention of the effects of natural disasters.

## **Emergency support services**

Eucentre develops and manages technical support services for emergencies in terms of "prevention and preparedness", as well as rapid response services to catastrophic events or for the management of local dimension events, with a view to strengthening the awareness and resilience of communities with respect to emergency events.

## **Geotechnical Earthquake Engineering**

The main expertise in this area is focused on the calculation of the seismic shaking expected at a specific site and in extended areas, on the multi-scale assessment of the geotechnical-seismic risk (e.g. soil liquefaction, slope instability, etc.), and on the development of tools for defining the seismic vulnerability of strategic structures and infrastructures, such as ports, earth dams, airports, and underground works. In addition, Eucentre has been involved in numerous field surveys with specific reference to geotechnical damage following past and recent earthquakes.

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# Products and Services ]

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# Simulators, technologies and IT systems for safety assessment

Eucentre can provide institutions, companies, and research organisations with a wide range of products and services, including:

## **Software platforms for seismic risk assessment**

Eucentre is able to develop software platforms for seismic risk assessment and real-time damage scenarios for structures and infrastructures. These platforms are useful tools for pre-event planning and emergency management. Through these platforms, users can view exposure, vulnerability, hazard, and risk data, and can also perform real-time damage scenario calculations by selecting the epicentre or fault as the source of the shaking, together with other earthquake characteristics.

## **Structural monitoring systems**

Eucentre is able to develop optimised and customised structural monitoring platforms for buildings, infrastructures, and industrial plants. These platforms enable short and long-term monitoring operations by integrating, as required, traditional electrical sensors with state-of-the-art sensors based on wireless, fiber-optic, and/or satellite (GNSS) technologies. The collected data is processed (locally or in the cloud) and used in numerical models to assess the safety of structures and provide useful information for intervention. Eucentre can support the customer at all stages, from the detailed design of the monitoring system to the development of analysis and data interpretation software, as well as the installation and final testing of the system.

## **Support for vulnerability assessment**

Eucentre's expertise enables it to carry out vulnerability assessments of all types of structures and to work across a broad spectrum with an integrated numerical and experimental approach aimed at developing guidelines and directives, including regulatory ones, or at defining priority intervention activities for building assets and infrastructures. Eucentre is equipped to undertake a comprehensive range of activities, including: numerical analysis of seismic behaviour and laboratory support for testing structural and non-structural elements, as well as innovative seismic protection systems; support for the verification of seismic compliance practices; support for simplified seismic vulnerability assessment of building assets within a given portfolio (companies, universities, etc.).

## **Dynamic tests for seismic certification of non-structural and industrial elements**

Eucentre is able to perform seismic certification tests on non-structural and mechanical plant elements according to the main internationally recognised standards, thanks to its 6- and 9-degree-of-freedom seismic simulators.

## **Testing for the qualification of structural bearings and seismic devices**

Eucentre has extensive experience gained from testing over 3,000 isolators, 1,500 structural bearings, and 200 dampers. At Eucentre's laboratories, testing protocols are conducted in accordance with international standards or, alternatively, customised research and experimental campaigns are developed in agreement with the client. Furthermore, the Foundation's laboratories are authorised to perform acceptance tests on devices as required by the 2018 Technical Standards for Construction.

## **Development of testing equipment for earthquake engineering**

The Foundation specialises in the design, construction and installation of experimental facilities and laboratories for the study of structures, components and non-structural elements. Its capabilities include the production of multi-degree-of-freedom shaking tables, testing systems for dampers and seismic isolators, and mobile laboratories for in-situ testing.

## **Development and management of technical emergency support services**

Eucentre is involved in the study of systems for the planned management of risk and the development of tools for technical emergency management. These include: advanced data collection tools for rapid damage assessment, damage assessment forms, decision support tools for emergency management, automated damage recognition methods using drones, advanced sensor and early warning systems, rapid assessment methods, structural monitoring systems, and territorial observation using remote sensing. Furthermore, it develops integrated intelligent monitoring systems for the safety of first responders, supports the drafting of procedures, and emergency planning.

# Education ]



# Courses designed to enhance professionalism and promote prevention

Since the beginning of its activities, Eucentre has promoted, supported and sustained the training in the field of seismic risk reduction and, more recently, in that of emergency management, through different actions at different levels. The Foundation's objective is to provide **training for young researchers and to enhance the expertise of practitioners and/or staff of public and private organisations.**

## Training for practitioners and industry

Since 2004, Eucentre has been organising **short courses and seminars on specific topics related to earthquake engineering.** These courses are designed for practitioners and technicians working in this sector who wish to gain a deeper understanding of the issues and challenges related to the behaviour of structures in seismic areas, and to develop the skills required to design and test such structures. The courses and seminars are held by national experts from university and industry. To date, Eucentre has organised 168 training modules with approximately 4800 participants.

The topics covered include structural design, which encompasses different material types (steel, masonry, reinforced concrete, timber), as well as the assessment of existing structures and seismic risk reduction in rela-

tion to historic-architectural heritage. Other themes include forensic engineering, geotechnical engineering, experimental survey of buildings and infrastructure in post-earthquake emergencies.

## Higher education

Eucentre supports the University School for Advanced Studies IUSS of Pavia with the purpose of offering master and doctorate **programmes in the field of assessment of uncertainties, risk mitigation and emergency management,** with courses held by professors of the highest reputation from all over the world. The School's objective is to provide a framework that enables students to gain an understanding of how to prevent and manage extreme events. Since 2001, the School has welcomed over 600 students from 60 countries to participate in its programmes. Eucentre is also involved in supporting the master programme "Civil Engineering for Mitigation of Risk from Natural Hazards" offered by University of Pavia in collaboration with IUSS Pavia. This programme's objective is to ensure a greater integration among different disciplines regarding the study of different risk types, the uncertainties linked to them, the techniques and methodologies for their reduction and management.



# Events and publications ]





# The promotion and dissemination of scientific culture

At Eucentre, scientific research is not only a core activity but also a key driver of knowledge dissemination. The Foundation has a long-standing commitment to scientific dissemination, with the objective of supporting and assisting citizens, governments, the Italian Civil Protection Department, institutions and companies in preventing the consequences of seismic events and structural damages, and in designing and building according to safe and reliable criteria and technologies.

Eucentre has established itself as a leading scientific reference point for the global research community, as well as for professionals working in the fields of earthquake engineering, design, and construction.

Books, monographs, reports and design manuals are published continuously to provide constant updating to the practitioners. In particular, the journal “Progettazione Sismica”, which was launched in 2008/2009, has the objective of fostering a culture of prevention through a continuous information and awareness campaign. The journal’s mission is well represented by 2009 Abruzzo and 2011 Japan earthquakes issues (which included translations of papers written by the reconnaissance teams working on the field during the immediate hours after the event) and by the monothematic issues about the events that struck Emilia in May 2012 and the Centre of Italy from 2016 to 2017.

In addition to the journal, Eucentre is engaged in a range of activities aimed at the academic community, including conferences, exhibitions, dissemination campaigns, public meetings and other events that facilitate direct engagement between science and citizens, schools and civil society. These activities employ clear, accessible language and multi-sensory, interactive modes of communication to engage audiences on both an intellectual and emotional level. Since 2018, Eucentre has participated in educational events, typically in collaboration with the Italian Civil Protection Department. These events have involved **the Seismulator installation**, an earthquake simulator comprising a transportable (9 x 2 m) shake table that, when combined with the MobileLab, **allows visitors to experience an earthquake** and to gain insight into earthquake engineering and the technologies that enable the construction of buildings capable of resisting seismic forces.

The Ministry of University and Research has awarded a grant to the Foundation in recognition of the Eucentre’s valuable contributions to the field of seismic risk awareness. The grant was allocated as part of the “Initiatives for Scientific Culture Dissemination” call, which supports entities engaged in the protection and enhancement of Italy’s significant technical and scientific heritage.



**Eucentre ]  
for ]**



# The advancement of science, research and innovation for the community

## Research

All activities carried out by the Eucentre Foundation are based on research, which is also its purpose. In order to provide appropriate responses to founders, organisations, companies, practitioners and partners, it is crucial to have the most up-to-date knowledge. On the other hand, it is equally clear that the experience and expertise gained over the years must be reflected in the research itself, through publications and training activities for practitioners and students from all over the world.

## Industry

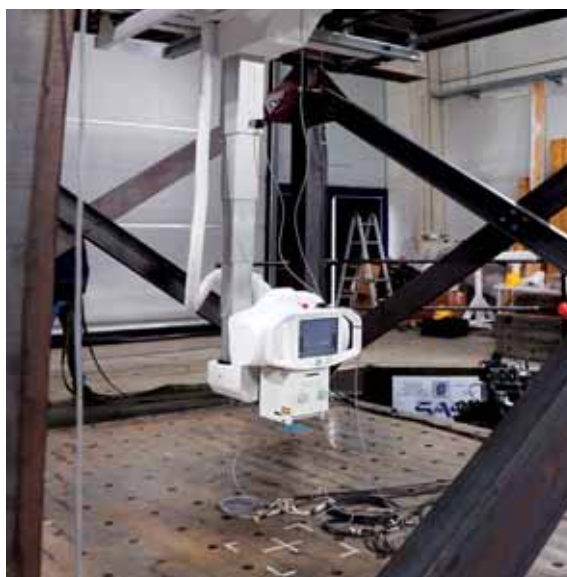
When an earthquake occurs, what is the performance of a screw, glue, a shelf, a closet, a window, a countertop, a wall, a column, a beam, a room, an entire building or a complex of buildings? The industry requires clear and certain answers. The Eucentre Foundation is able to provide them from both a theoretical and experimental point of view, thanks to the expertise and experience gained over the years and in cutting-edge laboratories.

### Eucentre for Research

- conducts and participates in applied research projects;
- engages in scientific networks;
- offers internships to Masters and PhD students;
- provides access to its laboratories;
- performs experimental tests;
- conducts numerical simulations of structural and geotechnical analysis;
- develops interpretive models.

### Eucentre for Industry

- provides support for industrial product certification;
- contributes to the seismic characterization of products;
- develops new types of experimental tests;
- develops patents on seismic protection devices;
- supports prototyping activities;
- performs qualification tests;
- carries out environmental and health risks assessment.





## Institutions

Since its establishment, a significant portion of Eucentre's activities has been conducted on behalf of public bodies and governments. From the participation in research projects to the support in training technicians for the vulnerability assessment of structures and buildings; from the production of damage scenarios in case of seismic events to the intervention in the disaster areas to assess buildings and strategic structures; from the realization of management systems for the accommodation needs of the population affected by emergencies to the experimental evaluation of structures. When it comes to knowing, evaluating, dealing with, mitigating seismic risk, Eucentre is the ideal partner for institutions at any level. From Municipalities to Regions, States, to the European Union.

### Eucentre for Institutions

- elaborates natural and man-made risk scenarios;
- participates in the drafting of regulations and guidelines;
- evaluates the vulnerability of structures and infrastructures;
- designs tools for emergency management;
- offers structural and damage monitoring services;
- performs post-disaster assessments;
- supports activities of territorial management and control on building regulations.

## Practitioners

Practitioners in the construction field (surveyors, engineers, geologists, architects and other technicians) may find Eucentre an invaluable partner in expanding their expertise in the seismic field. Eucentre organises a series of courses each year, consistently at the highest levels of scientific knowledge and regulatory update. Furthermore, the journal "Progettazione Sismica," published by Eucentre, provides a comprehensive resource for practitioners to stay abreast of the latest developments in earthquake engineering and its application by academics, experts, and technicians in the field.

### Eucentre for Practitioners

- offers refresher courses on seismic design;
- publishes journals and monographs on seismic design;
- performs on-site tests to support risk estimates;
- performs tests for characterisation of materials and soils;
- optimises and installs structural monitoring systems;
- develops simplified methods of design and assessment;
- offers assistance for bibliographic and normative research.





## Citizens

Over the past few decades, health and environmental education has played a pivotal role in enhancing the quality of life and extending the lifespan of individuals. We believe that it is also important to consider seismic education. Our homes, offices, schools and hospitals can be built or strengthened in order to better respond to a seismic event, with the aim of reducing, if not eliminating, the risk of damage and collapse. The Eucentre Foundation's objective is to enhance citizens' awareness of seismic hazard levels in their localities and to increase their knowledge of available methods and tools for improving the resilience of buildings. The Foundation believes that prevention is the most effective strategy for limiting damage and loss.

## Stakeholders and Partners

Eucentre requires external support to advance its research, experimentation, training, and information initiatives in the field of earthquake engineering. To achieve its goals, the organisation must engage with external stakeholders, including those who deal with the realities of daily life and the challenges faced by people, companies, and institutions. Eucentre's expertise and experience enables it to act as both a promoter and member of a competences network, influencing the progress of earthquake engineering and the prevention culture in a positive manner. Ultimately, this will lead to an improvement in the living conditions of the population.

### Eucentre for Citizens

- contributes to informing about risks and their possible reduction;
- host schools for teaching on seismic risk;
- performs scientific dissemination activities;
- offers technical and scientific expertise to the press;
- collaborates to the generation of a culture of prevention;
- participates in the post-emergency population management;
- accompanying those eligible for risk-related economic benefits.

### Eucentre for Stakeholders and Partners

- develops projects in the field of safety engineering;
- cooperates in university training activities;
- supports continuing training activities;
- promotes the integration of complementary expertise and interests;
- provides databases for data usability;
- implements platforms for natural and man-made risk assessment;
- realizes "incident evolution monitoring tools" for emergency support.





The enthusiasm a young organisation, but with 20 years of experience behind us...





# EUCENTRE

FOR YOUR SAFETY.

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