

quaderni di assorestauro



YEAR06NR01
MARCH2017

NEW APPROCHES TO THE RESTORATION OF BUILT HERITAGE

20TH-25TH MARCH 2017



20 MARCH
ROMA



23 MARCH
FERRARA



21 MARCH
ROMA



24 MARCH
VENEZIA



22 MARCH
BOLOGNA



25 MARCH
VENEZIA

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SCUOLA DI SPECIALIZZAZIONE
IN BENI ARCHITETTONICI E DEL PAESAGGIO



Quaderni di Assorestauro



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Edited by
Andrea Grilletto, Sonia Vallese

Translation of the articles submitted in Italian language
Raffaella Grasselli

Each article has been edited by
Alessandra Ledda, Clelia La Mantia, Emiliano Martino, Raul Musiate Arellano
Graduate School in Architectural and Landscape Heritage, Politecnico di Milano

Graphic Project



Blumorgana | Viviana Maria Lucia Volpini
info@blumorgana.it

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ITALIAN TRADE AGENCY

ICE - Agenzia per la promozione all'estero e l'internazionalizzazione delle imprese italiane

The Italian Trade Agency - ICE is the Government agency that supports the globalization of Italian firms, implementing the strategies of the Ministry of Economic Development.

The Italian Trade Agency - ICE helps to develop, facilitate and promote Italian economic and trade relations with foreign countries, focusing on the needs of SME's, their associations and partnerships.

The Italian Trade Agency - ICE sustains Italian firms in their internationalization processes, in the marketing of Italian goods and services while promoting the "Made In Italy" image around the world, and it is directly involved in attracting foreign direct investments.

The Italian Trade Agency - ICE provides information, support and consultancy to Italian companies on foreign markets, promoting and fostering exports and cooperation in all areas – industry (consumer and capital goods), agricultural technology and agri-food, services, and training - with the aim of increasing and making more effective their presence on international markets.

The Italian Trade Agency - ICE works closely with the Italian Regions, the network of the Italian Chambers of Commerce, business organizations and other public and private entities.

The Italian Trade Agency - ICE headquarters is in Rome and its network of offices around the world act as "Trade Promotion Offices and/or Sections" of the Italian Embassies or Consulates.



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associazione italiana per il restauro architettonico, artistico, urbano
italian association for architecture, art and urban restoration

Project coordinator:
Andrea Griletto

WHO IS ASSORESTAURO ?

Established in 2005 as the first Italian association of manufacturers of materials, equipment and technology, suppliers of services and specialized companies, Assorestauro represents the Italian sector of restoration and conservation of material heritage. To date, it is the sole association and a reference in the domestic and international market for anyone willing to start working in the conservation sector in Italy, to be intended in its broadest sense, that is, as a synthesis of the various disciplines involved, of the professional specialists, of the available technology and of the growing business community. If examined as a whole, the sector accounts for a large market share and has a meaningful impact on tourism, industry and bioconstruction.

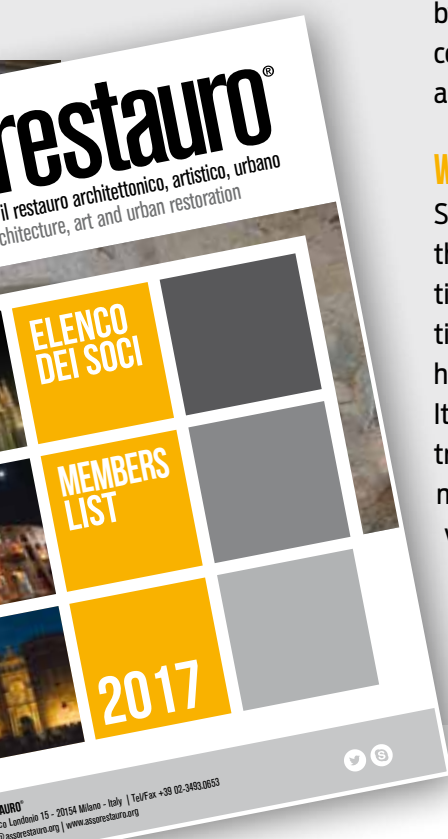
WHAT ARE ASSORESTAURO'S GOALS ?

Assorestauro is the National Trade Association for the Restoration Sector, representing manufacturers of materials, equipment, technology, specialist companies, designers and suppliers of services for analyses, surveys and diffusion. The Association offers its members information, assistance, advice and training both directly and through its partners, with a view to building a consistent and unitary orientation to the different sectors of the restoration industry at national and international level.

As a national association, Assorestauro is aimed at coordinating, protecting and promoting the interests of the restoration sector and it represents before the outer market, in Italy and abroad, the common positions for technical and economic issues, as well as image, by carrying out targeted activities in such relevant fields of the sector as information and communication, protection of common interests (economy, image, standards), research and development, promotion.

WHAT DOES ASSORESTAURO DO ?

Several activities aimed at promoting the professional skills in the restoration sector fall in the scopes of the Association. They include diagnostic analysis, design and on site execution, producing technology and materials, as well as contributing technological innovation, with the support of Institutions, Universities, Agencies for the protection of cultural heritage and ICE, the Agency for the internationalization and the promotion abroad of Italian businesses. This type of action includes both promotion in Italy (conferences and training seminars, trade exhibitions, courses and similar initiatives) and abroad (foreign missions, training, b2b encounters, restoration sites), where member companies are involved and offered the chance to study and penetrate foreign markets through projects co-sponsored by national and international bodies.



20 MARCH
ROMA

THE FORMER FEMALE PRISON OF THE MONUMENTAL COMPLEX OF SAN MICHELE

Consolidation project for the renovation of the building as new head office of the Higher Institute for Conservation and Restoration

Alessandra Ledda

Alessandro Bozzetti

SPC s.r.l.

STUDIO
PROGETTAZIONE
E CONTROLLI

mail@spc-engineering.it
www.spc-engineering.it

The building is an important part of the monumental complex of the former Institute of San Michele in Ripa, built from the XVII century for the willing of pope Innocenzo XII. His will was, through this institution, to solve the enormous problems of mendicancy and vagrancy in Rome, with the creation of an organic plan focused on the reeducation of young men and women throughout a professional training. The monumental complex is important not just as architectural heritage (it contains the Great Church and the Juvenile Detention Center by the architect Carlo Fontana), but it also has social value because it anticipates a modern mentality that considers the prisoner as a recoverable individual. The complex's construction history is 150 years long, and, since it was the location for artisanal activities as well as recover site, it has a great extension and a fragmented plan, in contrast with a rhythmic and unitary façade toward the Lungotevere. In the '80s, when, after being abandoned, its structural status was way above the limit state of collapse, the complex of San Michele was object of an important restoration intervention in order to be converted into the new headquarter of the Ministry of Heritage and Cultural Activities. The radical intervention included the substitution of almost all roofs and wood ceilings, the consolidation of vertical structures and vaults with ignition of fluid cement mortar and epoxy resins, the consolidation of structural failures of foundations due to the proximity of the Tevere river, the refurbishment of mortars and flooring of porticos and loggias, the construction of new security staircases and fire escapes.

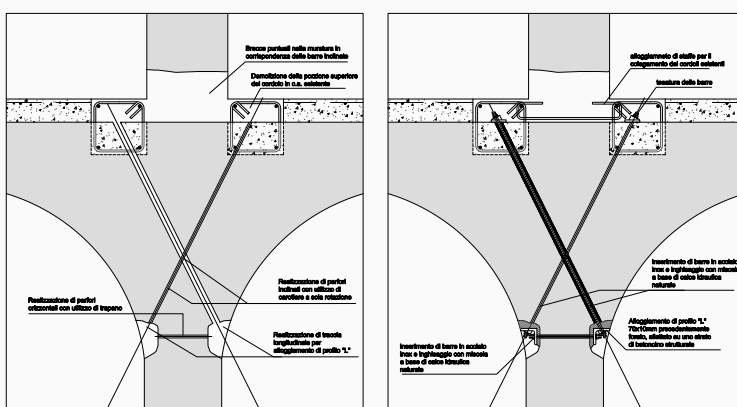


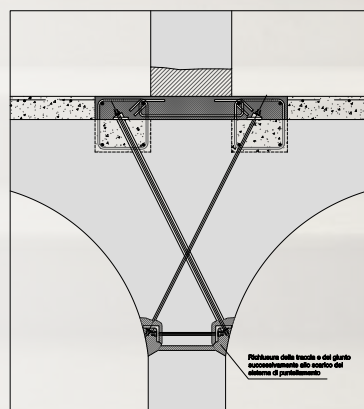
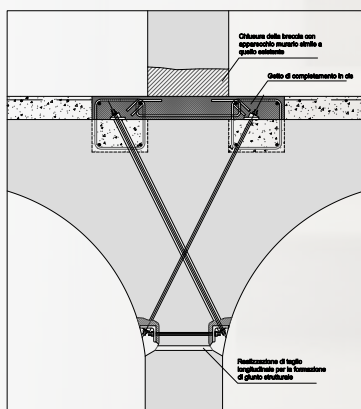
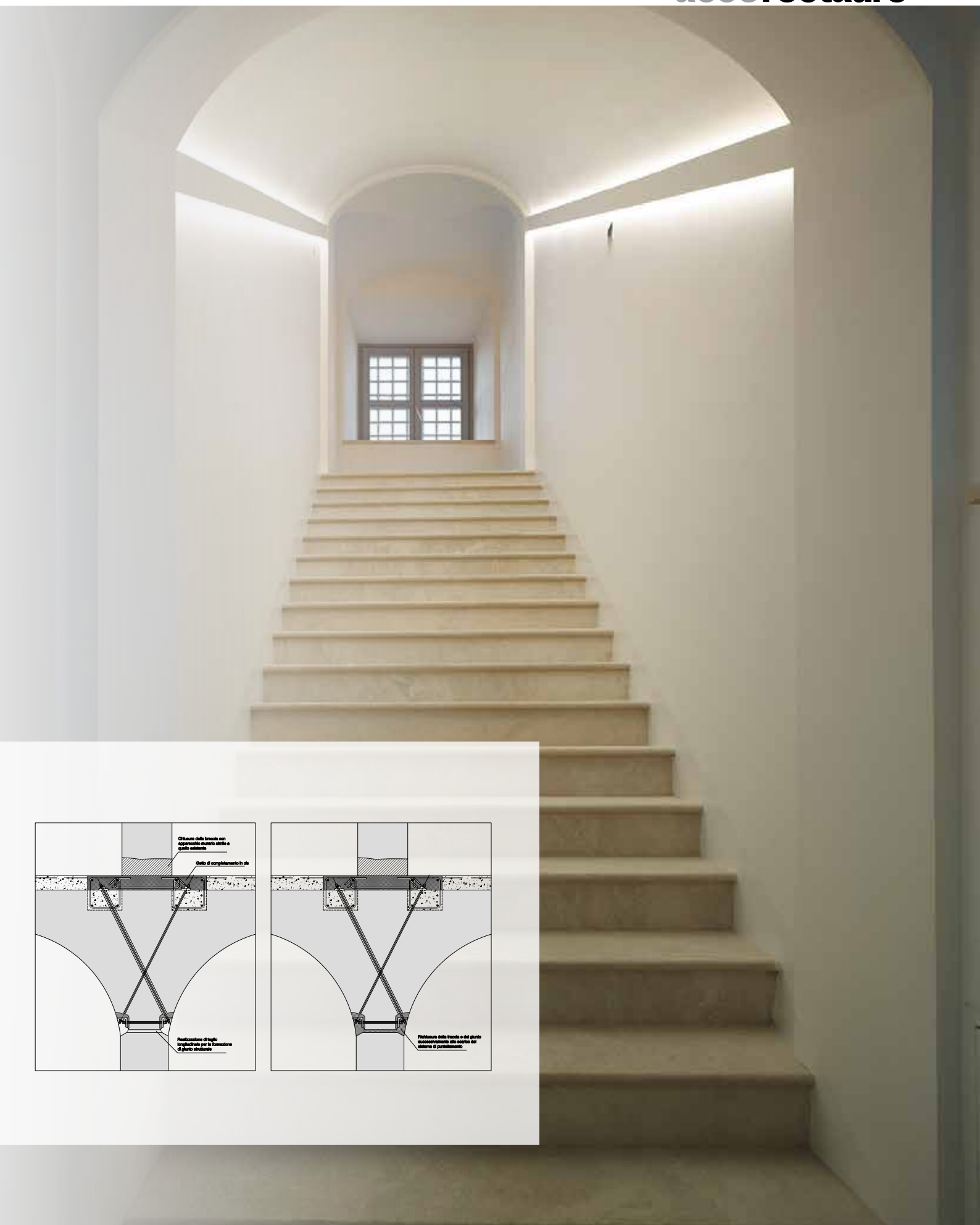


The Female Prison was designed by the architect Ferdinando Fuga in the 1734 in an area that faces the piazza of Porta Portese. The plan has a development mostly longitudinal but in section is articulated in three big volumes: the lower volume is constituted by the basement, the first and mezzanine floor; the volume of the cells and the major floor-to-ceiling hall; the attic level.

The recent restoration project was basically a consolidation project, that helps the new functional configuration of the interiors, eliminating or overcoming architectural barriers and the seismic retrofitting the structure. The conservation project preserves the skin of the building and its global structural behavior. This was possible with a series of local interventions, in accordance to the previous restoration works of the '80s, so that the global structural behavior would not change.

The interesting spatial features of this building, such as the former prison's cells, were preserved and renovated as new small office rooms. A new compound beam has been placed so that it could transfer the loads on the same supporting walls of the original arches, whose loads would not stress the walls anymore. In this way, the cell's walls tend to assume the only function of simple partition walls. This intervention, together with other consolidation interventions of the masonries, contributes to the seismic retrofitting of the building.

[illegible]





Alessandra Ledda

Alessandro Bozzetti

SPC s.r.l.

STUDIO

PROGETTAZIONE

E CONTROLLI

mail@spc-engineering.it
www.spc-engineering.it

THE DOMUS TIBERIANA ON THE PALATINE

The project for structural consolidation and seismic retrofitting

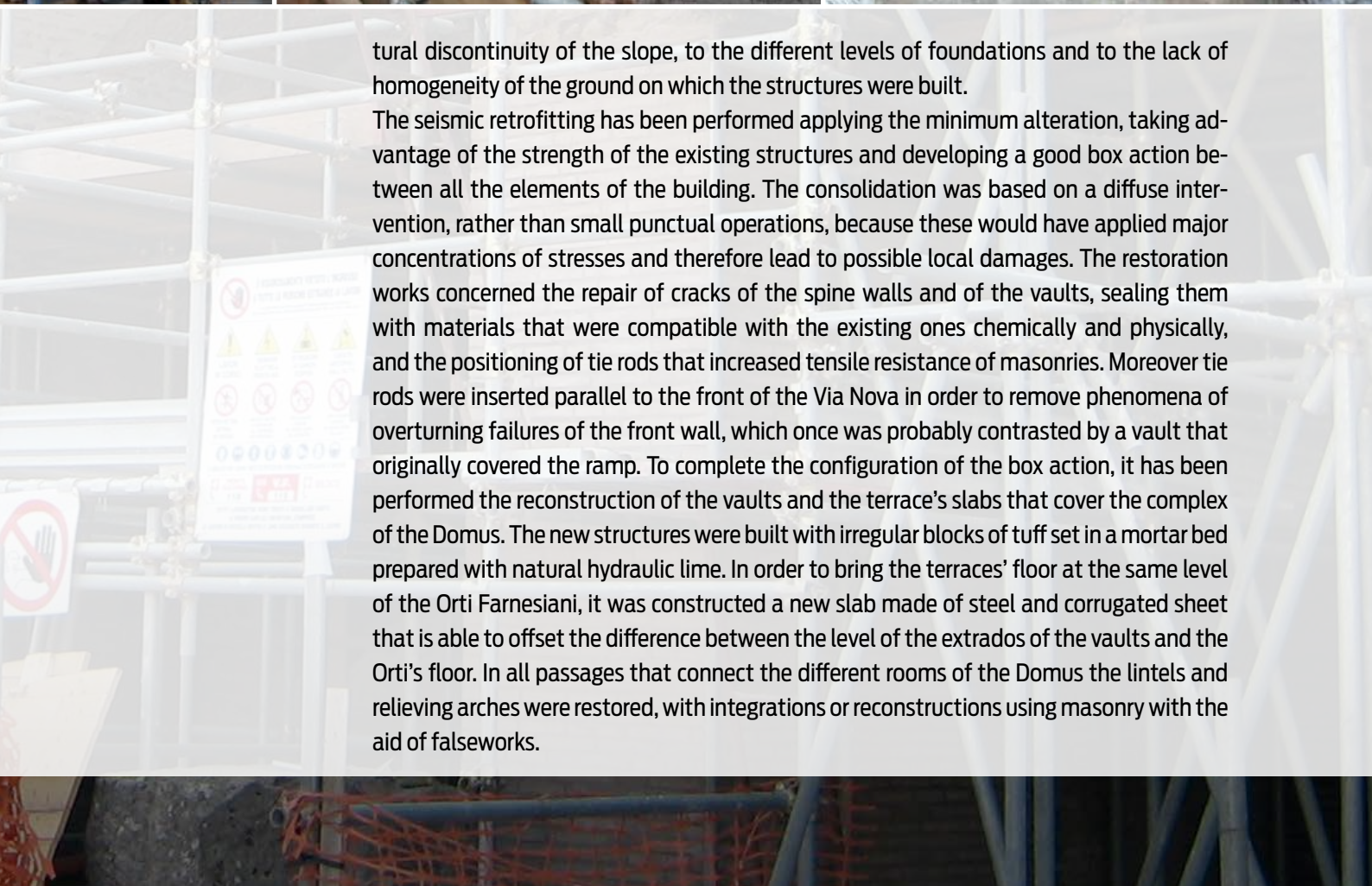
The situation originated from structural failures analyzed in the Domus Tiberiana is very complex. The architectural stratification noticeable is difficult to read because the building has a long history, made of transformations and additions, has suffered several earthquakes, has been excavated for archeological purposes and reinforcements have already been performed in past restoration works.

In general the structures are damaged by diffuse fractures, out of plumb walls, detachments and degradation of materials. The vaults as well as the foundations have cracks, most of which are severe and parallel to the slope. The two fronts of the building are detached from the spine walls, where cracks can be observed running from foundations to the top of the terrace of the Orti Farnesiani. From the analysis of the crack map, it looks like that the movement of the structure is mostly linked to the slippage of the lower side of the building toward the valley, with a slight rotation toward the mount. This structural failure is not due to vertical loads because they are modest; instead, it is to blame to the concentration of stresses due to the different responses given to horizontal forces by the different bodies. In fact, the seismic vulnerability of the building is mostly due to the struc-



tural discontinuity of the slope, to the different levels of foundations and to the lack of homogeneity of the ground on which the structures were built.

The seismic retrofitting has been performed applying the minimum alteration, taking advantage of the strength of the existing structures and developing a good box action between all the elements of the building. The consolidation was based on a diffuse intervention, rather than small punctual operations, because these would have applied major concentrations of stresses and therefore lead to possible local damages. The restoration works concerned the repair of cracks of the spine walls and of the vaults, sealing them with materials that were compatible with the existing ones chemically and physically, and the positioning of tie rods that increased tensile resistance of masonries. Moreover tie rods were inserted parallel to the front of the Via Nova in order to remove phenomena of overturning failures of the front wall, which once was probably contrasted by a vault that originally covered the ramp. To complete the configuration of the box action, it has been performed the reconstruction of the vaults and the terrace's slabs that cover the complex of the Domus. The new structures were built with irregular blocks of tuff set in a mortar bed prepared with natural hydraulic lime. In order to bring the terraces' floor at the same level of the Orti Farnesiani, it was constructed a new slab made of steel and corrugated sheet that is able to offset the difference between the level of the extrados of the vaults and the Orti's floor. In all passages that connect the different rooms of the Domus the lintels and relieving arches were restored, with integrations or reconstructions using masonry with the aid of falseworks.



21 MARCH
ROMA

THE “CORTILE DELLA PIGNA” A BRIEF OVERVIEW

The gradual transformation of the Upper Belvedere from ‘viridarium’ to closed courtyard is marked by a building process anything but linear. Following the steps of this process is useful to understand how the present appearance is not the result of a single project, but a continuous adaptation from the original idea, which was conceived and articulated by Bramante for pope Julius II.

This contribution is aimed to collect the most important results from three experimental restoration interventions conducted on the outer surfaces of the upper courtyard, and to give particular remark to the operational choices resulting from a dialectical confrontation with technical and scientific skills inside the Vatican Museums in order to build a future action plan on the entire architectural complex. By comparing new data materials and archive documents, in part as the result of recent survey. A number of investigations have been advanced about the finishings adopted through time and about the “Cortile della Pigna” mutations during the sixteenth century, investigations that determined the choices for cleaning interventions of architecture surfaces.

Vitale Zanchettin
*Superintendence for
Architectural Heritage,
a section
of the Department
of Scientific Services of the
Vatican Museums*

Fabio Morresi
*Vatican Museums
Diagnostic Laboratory for
Conservation
and Restoration*

HISTORY OF THE SCIENTIFIC LABORATORY OF THE VATICAN MUSEUMS

Three years after the Louvre Museum, on 14th December 1935, the first “National School of Restoration” was inaugurated in Italy along with the annexed “Scientific Research Laboratory” headed by professor Renato Mancia. The same year saw the launch of the scientific laboratory of the Vatican Museums, which was named “Gabinetti di Applicazioni Scientifiche” and put under the direction of Vittorio Federici. In the beginning, the primary activity of the Vatican laboratory was the compositional analysis of the alloys in archaeological, historical and artistic finds and of the pigments of murals and paintings. In parallel to purely chemical analyses, the field of non-destructive testing started to be explored, for instance by studying paintings with the help of blacklight (induced ultraviolet fluorescence) and experimenting the use of infra-red films inside the caves of the Basilica di Santa Maria Maggiore (carried out in the 1950s). The spirit of research and experimentation that nourishes today’s approach to research was already lively in the first years of life of the laboratory, as one can infer from the “Report about the use of some substances in restoring mural tempera”, dated 4th April 1935, in which director Federici presented his experimental approach to the use of sodium silicate solutions associated to albumin solution to obtain greater adhesion of the paint to plaster, by contemplating the addition of formaldehyde, salicylic acid and sodium fluoride to counter a number of troubles during experimentation. There was a strong connection between the restoration sites and scientific research. In practice, the laboratory strived to find a solution to the problems that would arise during restoration works. Research was in fact more centred on finding targeted solutions to

specific problems. For instance, special mixtures were formulated to “reveal and revive the paintings concealed by lime” in 1938. The result of a particular demand was also the development of a programme of partial protection of the paintings against the risks of air raids, which took into account both the action of displacement of large masses of air and vibrations, and the possible use of incendiary shells. The 1950s were a time of growth for the laboratory: new materials and new protocols for conservation and restoration were experimented. The foundations for the scientific development of the laboratory were then laid. Another important decade followed between 1960 and 1970, when the scientific laboratory of the Vatican Museum was entirely refurbished with new instruments and started experimenting the silicon rubber that would later be used to restore Michelangelo’s Pietà. Today, while not neglecting its role of support to restoration, the Scientific Laboratory carries out scientific research at a larger scale. The fields where scientific research is currently focussed are the new high-tech materials (nanoparticles, composite materials, structural analysis systems and 3D printing, development of open source electronic systems to monitor physical parameters useful for conservation). In parallel, the study of new non-destructive testing methods has helped reach extremely interesting results, especially in the field of imaging. In the sector of the research of new restoration systems and techniques, the Vatican laboratory has been very active in the use of lasers, to the point that today it is one of the laboratories with the most comprehensive set of equipments.



Raúl Musiate Arellano

CLEANING OF ARCHITECTURE SURFACES. CASE STUDIES OF MICRO-AIR-ABRASION AND YAG LASER CLEANING TECHNIQUES

Cleaning is an action that involves, generally, dirt removal. In the field of restoration, cleaning architecture surfaces concerns the use of a whole series of techniques and instruments having as main purpose the removal of alien matter that is detrimental to the preservation of the of Cultural Heritage's original matter or that compromises its whole aesthetic appreciation. In order to better achieve a cleaning treatment, it is important to objectively identify the causes that push to do so. When it comes to define the purposes of the cleaning intervention, often aesthetics overlaps scientific reasons, this favors excessive care on finding original aspects of the architecture surface other than objectively inquiry the harmfulness or extraneousness of the matter that obfuscates it⁽¹⁾. In fact, there is a whole variety of components that one could come upon when examining the surfaces, these could include black crusts, deposits or/and films and patina of various nature that may not necessarily be harmful for preservation purposes. The greatest difficulty of surface cleaning interventions is due to its subtractive nature, thus constitutes an irreversible and definitive intervention which requires a critical interpretation, still subjective since it is closely linked to the restorer's sensitivity and the historical values of each époque⁽²⁾. Once defined the intervention purposes, i.e. what to clean, one should define the criteria for the intervention. The cleaning treatment is to be considered under controllable, gradual and selective terms as well as the chemical, physical and mechanical compatibility of the processes. These terms should guide towards the most suitable choice in respect of the Cultural Heritage surface. Among the broad cleaning techniques, micro-air-abrasion cleaning system (micro-sandblasting) and laser cleaning system have become widely used for their versatility and effectiveness. Cleaning technique by means of micro-air-abrasion (micro-sandblasting), is a mechanical procedure employed especially on stone and metallic surfaces. Micro-sandblasting is an accurate method which is carried out with a precision pencil-shaped instrument provided with an adjustable nozzle. The instrument is connected to a compression system functioning by means of air or nitrogen. The principle is simple: the system releases an abrasive mix in the form of spray able to remove black crusts. The grain shape





and the grain size of the abrasive sands employed must be chosen for each specific case, as well as select only abrasives with lower hardness in the Mohs scale⁽³⁾ than the surface's to be treated. The spray is finely adjustable in order to measure the amount of abrasive to release therefore the process can be defined as a "high-controllable" technique. Generally speaking, micro-blasting causes large amounts of volatile powder consequently when intervening in busy environments⁽⁴⁾, is preferable to combine an effective aspirator with the system. Laser technology for cleaning is instead a physical technique that had its first applications in the seventies. Since then, its use has become increasingly widespread within the Architectural Heritage field, especially for, stone, metal, wood and painted surfaces. The system functions with a laser radiation with diameters between 4 and 10 mm. Laser pulse duration works around 1/4000 second at intervals around 6 seconds between pulsations, however this depends strictly on the crust extent and the surface to be treated. The YAG lasers (yttrium aluminium garnet crystal based lasers)⁽⁵⁾, is absorbed by dark colored matter i. e. the black crusts, making it reach temperatures between 4000 and 7000°K so much quickly so that they do not spread any heat to the substrate. This feature represents the main advantage of this technique: its "high selectivity". Cleaning a stone substrate would mean treating a lighter color than the black crust, light colors reflect the incident laser just like it would happen with natural light, wherefore laser machine stops releasing radiation and stone does never get affected.

This article will explain briefly two application instances of the preceding described cleaning techniques performed within the complex of the Vatican Museums: micro-aero-abrasive cleaning equipment was employed in the "Cortile della Pigna" and cleaning techniques through YAG lasers were employed in restorations led by Diagnostic Lab. for Conservation and Restoration of Vatican Museums.

(1) Torsello, Paolo B. *La pulitura delle superfici: alcune domane e una riflessione*. In *La pulitura delle superfici dell'architettura: atti del Convegno di studi* : Bressanone, 3-6 luglio 1995, by Guido Driussi and Guido Biscontin, 636. Padova: Libreria Progetto, 1995, p. 15

(2) Botticelli, Guido, Sandra Botticelli, and Silvia Botticelli. *Metodologia di restauro delle pitture murali*. Firenze: Centro Di, 2010, p. 97

(3) *A scale of hardness for minerals that ranges from a value of 1 for talc to 10 for diamond used in classifying minerals. The position on the scale depends on the ability to scratch minerals rated lower*

(4) Amoroso, Giovanni G. *Il restauro della pietra nell'architettura monumentale: posa in opera, degrado, pulitura*. Palermo: D. Flaccovio, 1995, p. 190-192

(5) Lazzarini, Lorenzo, and Marisa Tabasso Laurenzi. *Il restauro della pietra*. Torino: UTET libreria, 2010, p. 144



Raúl Musiate Arellano

Caterina Giovanni


info@ibix.it
www.ibix.it

IBIX: MICRO-AERO-ABRASIVE CLEANING SYSTEM

The uppermost portion of the monumental Belvedere Courtyard designed by Bramante in the 16th century, commonly known as the “Cortile della Pigna” (Pinecone Courtyard) on account of the statue of Roman origin that adorns it, is currently undergoing a major restoration effort carried out by the Violi company on commission from the Vatican Museums. Part of the Vatican Museums complex, the “Cortile della Pigna” is bound by a two-flight stairway that surrounds the exedra in which the famous Roman monument is found. The priceless setting suffers from extensive problems traceable to centuries-old build-up of dirt and smog. The restoration experts of the Violi company have decided to resolve these problems using the IBIX Media Cleaning System.

This innovative method uses micro-air-abrasion systems that projects inert material at low pressures. The IBIX models employed, TRILOGY 28 and TRILOGY 40, are equipped with HELIX helicoidal vortex guns with conical nozzles. TRILOGY brings together the very best in IBIX technology for the cleaning of historically valuable surfaces, combining in a single system the three main operating modes of the IBIX method: dry, steam, and with the HELIX helicoidal vortex gun. Inside the HELIX gun there is a vortex generator made of tungsten carbide, a highly abrasion-resistant material that causes the inert material to rotate as it leaves the gun, this means that the air flow and the inert material reach the surface treated tangentially rather than perpendicularly. This ensures a more delicate approach to restoration projects without diminishing the machine's performance since rotating motion favours the detachment of alien matter.

The method used to clean the “Cortile della Pigna” involves low-pressure (3 bar) projection of IBIXART Extrafine natural inert, an almandine mineral that neither crumbles nor flakes,

thanks to an elevated hardness of 8 on the Mohs scale (diamonds are rated 10). These features make for an extremely effective treatment with reduced quantities of material and at extremely low operating pressures, guaranteeing the delicacy of the operation. And the weight of the material ensures that the granules fall within a limited area around the work zone, drastically reducing the amount of dust.

The travertine marble found in the “Cortile della Pigna” will be cleaned with the micro-air-abrasion method, effectively removing the harmful layers of soot while preserving the authentic historic layers and the underlying material.

Another application of the method is selective removal of paint layers along with the cleaning of plaster. It is expected to treat the wall removing the existing painted layer so it is prepared to receive a new painted layer without the risk of stripping off any layers of plaster and avoiding any aggressive method. The plaster will be restored only in those spots where it is deteriorated.

Thanks to the low invasiveness of the method and the limited amount of dust produced in the working area, still protecting correctly the working site, the cleaning procedure can go on throughout the day without interfering with activities underway in adjoining spaces or with the flow of tourists and visitors, even during peak visiting hours in the Vatican Museums.

The use of IBIX technology guarantees maximum respect of the historic materials and full cleaning of the architecture surfaces. The method is based on a scientific approach that combines the diagnostic and planning phases with the treatment itself. There is no room for second thoughts in cleaning operations, given that the process of removal cannot be reversed, which makes it of fundamental importance that the operation be carried out as gradually as possible, with the action of the machine under the full control of restoration professionals. Meeting all the important conditions of the technique it is aimed to free from pollutant deposits and stains the plaster and the travertine marble of Bramante's courtyard, the magnificent jewel of the monumental complex of the Vatican Museums.



Suleymaniye Mosque, Istanbul



Defensive walls of La Valletta, Malta

Alessandro Zanini

LASER APPLICATIONS FOR CULTURAL HERITAGE



Conservation Technologies
Department

conservazione@elen.it
www.elengroup.com

Laser cleaning applications in the preservation of cultural heritage have been known since the 70's but have had a significant increase in the last ten years, thanks to studies on the ablation process and the development of laser systems tailored for this application. The growing evidence for efficacy of this approach, the increase of case studies and the wide dissemination of its use in restoration fields around the world have also been joined by a large number of conferences and scientific publications on the topic. At the same time, laser systems for conservation purposes appear more and more often in fairs and exhibitions. In addition, some important key studies have raised the interest of the mass media that gave a high resonance to this innovative technique extending its dissemination and knowledge.

At least 400 laser systems are currently working in conservation and restoration laboratories both in Europe and in the rest of the world. All this shows how laser technology has moved from science labs to commercial production and finally to the restoration sites. The scientific contribution of leading research institutes in fact plays a fundamental role in the acceptance of laser cleaning technique in daily conservation practice.

In the restoration of artworks you can meet a lot of different conservation issues: the complete or partial removal of black crusts, of corrosion products, of retouching and repainting of damaged coatings and biodeteriogens from various substrates such as stone, wall paintings, metal, wood, paper. The variety of combinations between the substrate and the decay to be removed and the need for high selectivity make the optimization of the laser



ablation process difficult: the versatility and flexibility of the laser system is therefore of fundamental importance to safely deal with the largest number of cleaning problems. The study of the optimization of the process of removing unwanted incrustation takes place through two main channels: the variation of the wavelength or the variation of the pulse duration.

The Nd: YAG solid state lasers in their fundamental wavelength at 1064 nm in the near infrared have proven immediately the most suitable for the application in question. It has also been shown that an intermediate pulse duration between that of the Q-switch laser (<10ns) and of the free running (<200µs) lasers allows to avoid both the photomechanical damage induced by very short pulses, and the photothermal damages produced on the surface by irradiation with very long pulses. The Nd: YAG laser systems called Short Free Running (SFR) and Long Q-switching (LQS) have therefore been proposed to overcome the aggressiveness of the Q-switching lasers (QS) on extremely brittle materials and to reduce both the photothermal and photomechanical damages possibly caused by too long and too short pulse durations.

In recent years, there have appeared on the market and in restoration and research laboratories laser systems for cleaning with wavelengths different from the "traditional" Nd: YAG: in particular, are proving to be particularly effective the Er: YAG (Erbium systems, with 2940nm wavelength) and the Ho: YAG lasers (Holmium systems, with 2100 nm wavelength).

These two new systems are today present in the Laboratory of Diagnostic for Conservation and Restoration of the Vatican Museums that is at the forefront in Italy and Europe in the restoration and in the experimental application of the most sophisticated tech-





nologies for the conservation of cultural heritage. The Director of the Laboratory, Prof. Ul-derico Santamaria, is in fact always staunch supporter of the indispensable union between art and technology for the conservative restoration, following the well-known principles of the theory of the restoration of the famous historian Cesare Brandi.

Within the Laboratories, the laser technologies have long been studied and applied suc-cessfully. The restorers can count on a large number of different lasers that is enriched year after year. Among the artworks restored in the Vatican Museums and returned to their original beauty thanks to the laser we remember the wall paintings by Michelangelo in the Pauline Chapel, a painted sandstone Egyptian sarcophagus, several marble sarcophagi from the Roman period, the frescoes of the Necropolis of Santa Rosa, the basement of Antonio Pio column.

It was also tested to restore stone artefacts exhibited outdoor, to remove lime deposits and iron oxides, as well as to passivate ancient metal objects (e.g. Vatican Gardens, Roman sarcophagi, etc.)

The Holmium laser, which comes from the medical field and just landed in the world of restoration. The strength of this system lies in its extreme ability to pulverize hard aggre-gates (and is in fact used in medicine for the treatment of kidney stones) combined with a simultaneous biocide action capable of eliminating mosses, fungi, lichens, and any of



organic and biological nature material deposited over time on the works, often left to the elements, such as those of the Vatican Gardens.

Within the Vatican Laboratories After a diagnostic survey campaign, a controlled fluence laser type Nd:YAG Qsw 1064 nm was successfully used to remove selectively the natural resins found on two paintings on canvas by Lorenzo Lotto (“Presentation of Jesus in the Temple” and “Jesus Christ’s Baptism”, both the property of the Museum of the Holy House of Loreto.

More recently has been tested the Erbium system, which has been successfully applied for the removal of layers of ancient restorations on the board painting of “Madonna della Cintola” by Vincenzo Pagani. Thanks to these successful trials the same system is actually applied in ISCR institute in Rome to remove hard deposit from a board painting of St. Bartholomew, from a Tuscan school of the fifteenth century: the layers of this deposit appeared very unique and tenacious, almost chalky, and had proved resistant to removal with conventional chemicals.

In conclusion, the intense trials conducted in recent years by accredited Restoration and Research Laboratories in Italy and around the world has led the expansion of laser applications in various conservation problems. With the advent of new systems and new laser wavelengths even more interesting fields of application will be explored.

Alessandra Ledda

Giorgio di Ludovico



info@tecnovagroup.it
www.tecnovagroup.it

THE DEPARTMENT OF EARTH SCIENCES OF “LA SAPIENZA” UNIVERSITY IN ROME

The method of electro-physical dehumidification of masonry in a basement damaged by rising damp

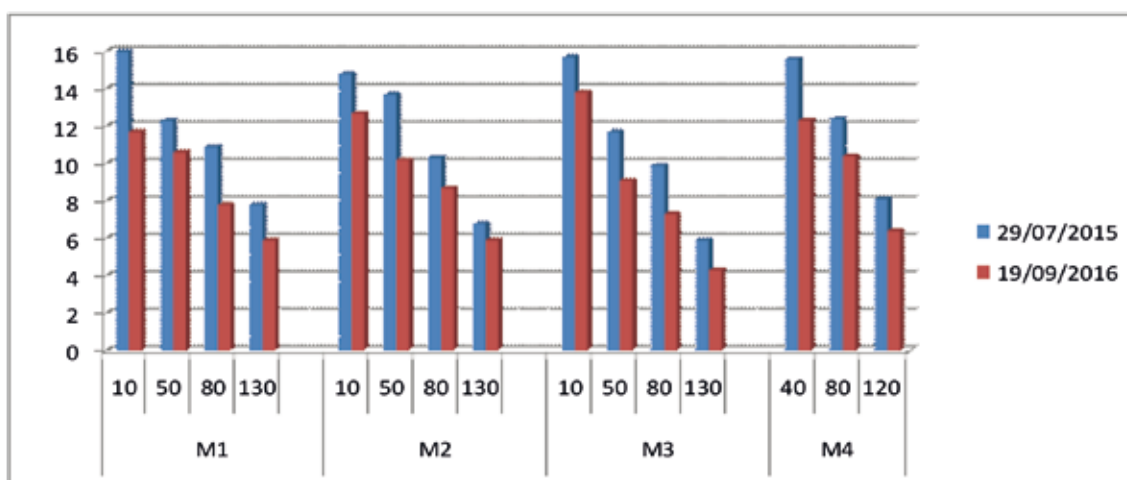
Designed by the Rationalist architect Giovanni Michelucci in 1932 and inaugurated along with other buildings inside the university campus of Roma La Sapienza in 1935, the edifice is an example of Italian Rationalist architecture with its neat reinforced concrete skeleton and travertine stone façade.

Located in the neighbourhood of San Lorenzo, near the strategic railway stations of Roma Termini and Tiburtina, the university campus is one of the most important achievements of Italian Rationalism, whose site management and coordination was entrusted to Roman architect and town planner Marcello Piacentini. A monumental gate overlooks the main square, Piazzale della Minerva, where the severe front of the Rector's Palace stands out, the work of Piacentini himself. The north and south ends of the square accommodate the building of the Department of Earth Sciences designed by Michelucci and the building of the Department of Mathematics designed by Giò Ponti, respectively. Both edifices have their façades lined with travertine stone slabs and abide by the traditional nationalist and rationalist aesthetic rules dictated by architect Piacentini.





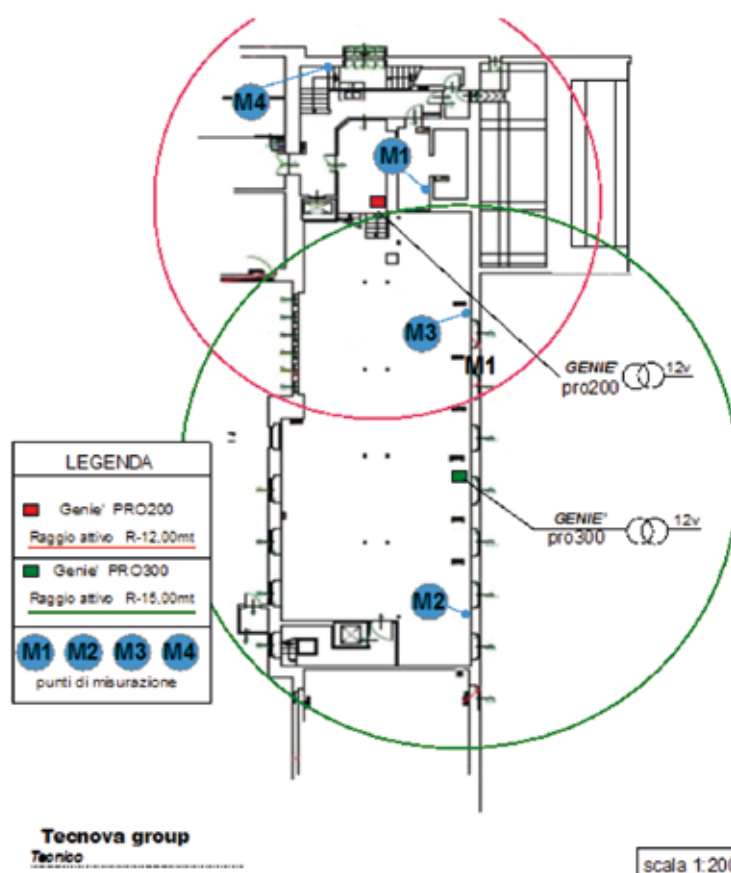
The main front of the Department of Earth Sciences is simple, neat and symmetrical, with two staircases to the sides giving access to the main entrances, raised on platforms and scooped deep into the façade. Deep loggias in the two top floors create two peculiar side zones contributing light and shadow effects to the façade. The central portion is characterized by four rows of windows, three of which are rectangular in shape and the top one has smaller horizontal openings. A delicate moulding outlines the whole volume on top. The complex is composed of two buildings. One faces the main square and has a traditional plan with a rectangular central courtyard; it rises on three above-ground levels and



Verifica annuale archivio
Università di Roma La
Sapienza. 19-9-16



Cliente	Università di Roma, Sapienza - AGE
Indirizzo immobile	Piazzale Aldo Moro 5, 00185 Roma



one basement level. The interiors accommodate all the areas dedicated to students and teachers, including conference halls, classrooms, the library, etc. Another volume stems from the north-eastern corner of the former building and has a tapered rectangular plan to house the mineralogy and geology museums. An L-shaped corridor connects the two building creating an inner courtyard.

In 2015 some degradation was remarked in the basement masonry, where the archives are located, caused by humidity, and namely by water rising from the underground. This particular phenomenon is owed to the typical polarity of water molecules, capable of interacting with the stone of the masonry, which is equally polar and therefore hydrophilic. Electrical forces cause water to become attracted into the micro-pores (capillaries) of masonry and, by adhesion, to migrate upwards and transport all salts encountered while rising. The problem affects walls and relevant finishes up to 1.5m; rising stops when capillary adhesion cannot counter the gravity force. The prominent degradation of the masonry, mainly caused by salts, consists in plaster peeling off and swelling copiously, with a resulting loss of material. Moreover, the water trapped inside the walls evaporates into the rooms and interferes with the health of the environment, as well as with the conservation of the books in the archives. Finally, any humid masonry is potentially at risk of biological attack. For all the reasons above, the University management decided to solve the problem of rising damp prior to restore wall finishes. The operation is necessarily preliminary to the renovation of the plasters; otherwise the plasters, while new and more macroporous than the old ones, would degrade soon. First of all, the management entrusted Tecnova Group to supply an electro-physical dehumidifier, which was installed inside the rooms and connected to the mains. The system helps solve the problem by generating electromagnetic pulses capable of interfering with the electrical interactions of water and masonry. In brief, it prevents capillary adhesion and therefore rising damp, keeping water low in the walls.

Before installing the device, a site analysis was carried out, with the measurement of the amount of water in the walls at different heights. This preliminary fact-finding step was followed by the installation of two dehumidifiers with a range of action of 15 and 10 metres, respectively, in July 2015. During the drying process, the rooms must be ensured adequate ventilation, controlled temperature of 20°C and relative humidity of 65%.

One year after the installation of the system, some masonry samples were collected to monitor the content of humidity in the plaster, with the help of a ponderal analysis and the identification of the salts in the masonry. Small holes of maximum 10mm width and 10cm depth were bored to collect the samples, whose humidity values were measured by means of the ponderal method with thermal-hygrometric verification. The method helps calculate the balance between the weight of the sample at humid state and the weight of the sample after it is dried under controlled temperature not exceeding 110°C.

The results of the analysis above were compared with the data obtained from the ponderal analysis performed upon the installation of the device in July 2015. The diagram of the comparisons show the fall in water content in the masonry. Water content values at different spots vary between 5.9% and 13.8%, therefore exceeding the physiological content of masonry, equal to 2%-4%. This means that the drying process is still at an early step and further analyses will be needed to obtain better results. Once the convenient humidity value in masonry is reached, then the plaster and all degraded finishes will be restored.

22 MARCH
BOLOGNA

Clelia La Mantia

Rossana Gabrielli

Leonardo

info@studioleonardo.it
www.studioleonardo.it

THE RESTORATION OF HISTORICAL SURFACES BELONGING TO THE ARCHITECTURE OF BOLOGNA: SOME EXAMPLES OF «RESTORATION OF THE RESTORATION» AND NEW TECHNOLOGIES

Starting from 2012 we had the opportunity to restore some of the most important monuments in Bologna. These have historical facades characterized by the most popular items widespread in the historical centre: brick masonries and architectural elements in moulded sandstone (cornices, capitals, etc.). The typical finish of their wall surfaces had a light pink veil, because of the earthenware which let the underlying masonry texture be visible. This kind of finish is inspired by the medieval technique called “sagramatura”⁽¹⁾.

This is exactly the appearance of the facades of two buildings that the ICE delegation is going to visit in Bologna: Podestà Palace, restored between 2012 and 2015 and Scappi Palace, that is still under work. Since these palaces have been restored many times in the past, it was necessary to make a preliminary accurate analysis campaign aimed both to define the preservation state of the surfaces and to identify materials and product (such as application of stucco or strenghtening), used in the previous interventions that require a specific work: a real “restoration of the restoration”.

PODESTÀ PALACE

THE STORY

“Podestà” palace was built in 1200 in Maggiore Square to a public use, but now it has such a different appearance. It is a complex and the most ancient part is the one corresponding to the Arengo tower, 39 mt long. In 1245 the palace was united with “Re Enzo” palace and “Capitano del Popolo” palace. At the lower level we can see a space covered by a cross vault called “Voltone del Podestà”, supported by 4 columns with 4 terracotta sculptures on their top. In the second half of XV century Giovanni II di Bentivoglio decided to modernize the facades that changed their look from medieval to Renaissance. However the work remained unfinished because Bentivoglio was sent away from the city after a people’s insurrection. Nowadays we can see a lower level with 9 arches and an higher part with 9 corresponding arch windows. Sandstone is the most used material even for the decorations. In the base there is a bossage and decorated tiles. We can remind the criticized restoration of 1910 by Alfonso Rubbiani who built battlements as crowning elements, to complete the Bentivoglio’s project and made demolitions and remaking in the loggia. Rubbiani’s idea of restoration was the one of reinstatement, made by removing disharmonious elements and remaking others⁽²⁾.

(1) Gabrielli R. e Geminiani F., *Le finiture dell’edilizia storica bolognese: la sagramatura ed il restauro delle facciate nell’esempio di palazzo Agucchi*, in “Dossier n.5/2001”, Maggioli Editore

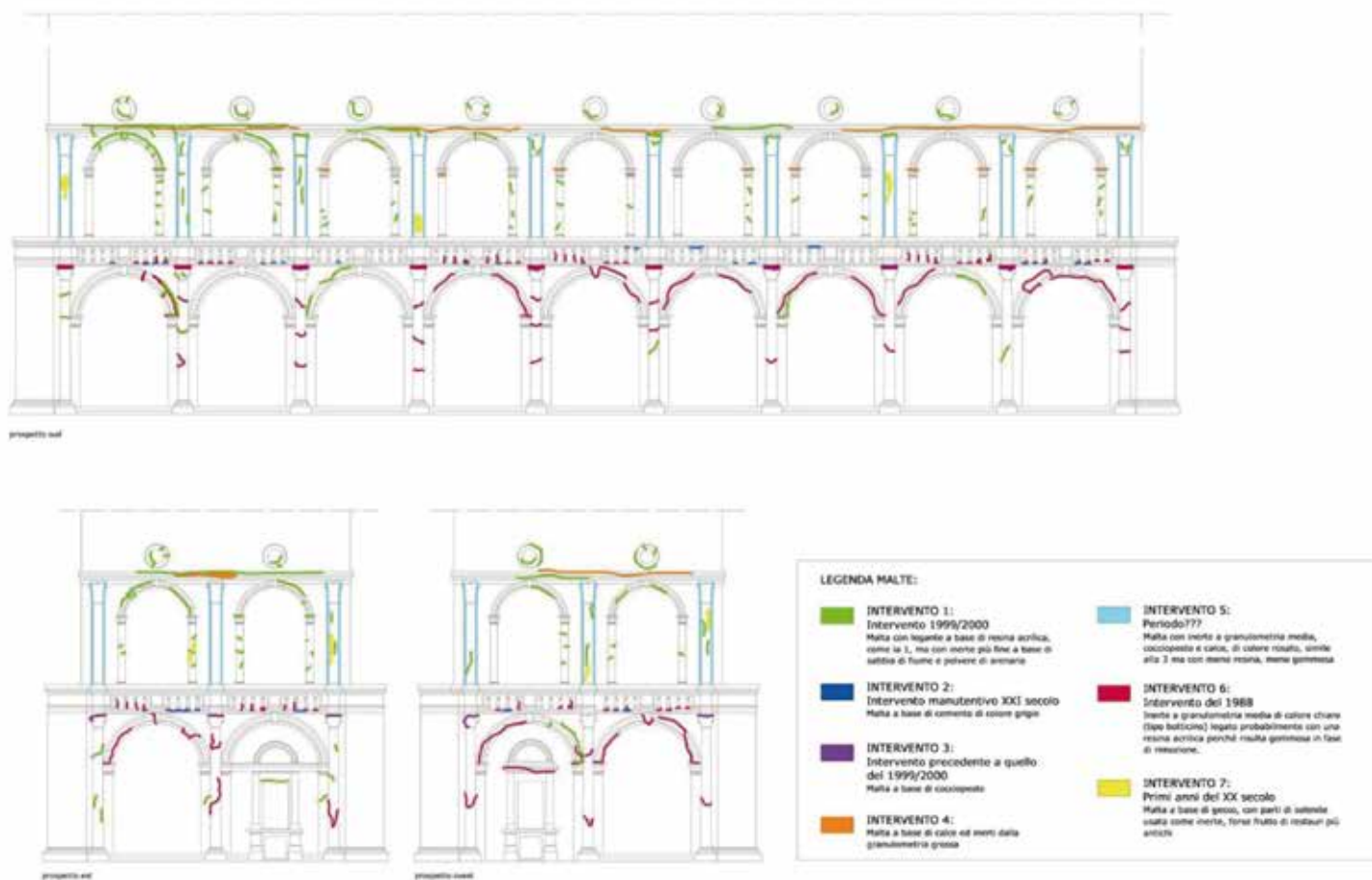
(2) Antonella Ranaldi, *Il restauro di Rubbiani del Palazzo Re Enzo*, in *Palazzo Re Enzo. Storia e restauri*, a cura di Paola Foschi e Francisco Giordano, Costa Editore, Bologna 2003. Pp. 95-118



A POSSIBLE METHOD OF INTERVENTION: THE CHOICE OF MATERIALS AND PRODUCTS

According to what we have already said, before the operational phase, we made an accurate analysis campaign not only direct on the ground, but also with an archive and library research aimed to understand the type and the preservation state of the materials used at the moment of the foundation and in the next interventions. For example, correlating analysis's results on materials and the information achieved, it has been possible to realize a stratigraphical analysis about the various types of mortar founded in the masonries. This kind of analysis has been used to develop a mapping and a cataloguing of these materials and to decide what were the best product to use in the cases of reintegration or filling. For this reason we used various types of mortar with an appropriate formulation, to respect the principle of compatibility (of composition, particle size, and colour) with the sandstone. Besides we observed that in the past was applied a strengthening product, silicon based, exclusively in correspondence to the sandstone elements of the higher part of the facade, whose preservation state is clearly better than the one of the lower part.

During this intervention we had the opportunity, in collaboration with the Department of Material Sciences of Bologna University, to test a nanotechnologic protective system titanium dioxide based that protects the surfaces from atmospheric agents and in addition absorbs pollution giving back clean substances to the air.





PALAZZO SCAPPI

THE STORY

Palazzo Scappi, located in the historic centre of Bologna was the senate palace of the family from which it takes its name. It is located in the so called “Canton’dei Fiori” where in the past had place the flower market.

It was built in the middle of ‘500 ⁽³⁾ on the place where stood the houses of the family which included a thirteenth-century tower that still exists. Its current appearance is due to the reconstruction made by Augusto Sezanne in 1892.

The building doesn’t have a very developed height, but can include 5 rows of small and big windows, including those of the portico: the smaller ones are rectangular and decorated with sandstone frames; those of the main floor, the most majestic, are decorated with triangular gables “in rock” and with sill supported by long grooved shelves. Today some of these are buffered, others were expanded and became some longest openings.

The lower part consists of six arches supported by brick columns, with composite and Corinthian capitals in stone characterized by different decorative motifs.

Scappi family died out in 1707 with the death of the last member. Later on the building underwent several changes of ownership.

THE INTERVENTION

Also in the case of the restoration of Palazzo Scappi’s facade (which have consisted more in securing sandstone element that were at risk of detachment) it was fundamental an accurate phase of stratigraphical analysis that has been used to detect different types of mortars (made of lime and sand, gypsum, up to a cement-based mortars), used for fillings, reintegration and partial reconstruction of the sandstone elements under construction and subsequent maintenance operations or restoration. Through the comparison between

(3) Roversi Giancarlo, *Palazzi e case nobili del ‘500 a Bologna*, Grafis Edizioni, Bologna 1986, pp. 341-348

direct stratigraphical analysis and the information gleaned from laboratory investigations, carried out on samples taken appropriately, types of finishes applied on surfaces have been identified. Even in this situation all the data collected during the analysis phase represent an extremely important tool for the definition of the methods and materials to be used at different stages of intervention in order to run an effective restoration, sustainable and respectful of the historic features of the building .

SAN PETRONIO BASILICA

THE STORY

The restoration methodologies described above were also used in the case of the important intervention made on the San Petronio Basilica ⁽⁴⁾.

The San Petronio Basilica is located in the large Piazza Maggiore in Bologna.

Its construction began June 7, 1390 under the direction of the work of Antonio di Vincenzo, but we cannot set a date for the conclusion. It is a late-Gothic basilica with three naves. According to the original plan, its length should have been even greater ⁽⁵⁾.

The current structure of the facade is characterized very clearly by a lower part made of brick whereas the lower part, which includes the three portals, is covered with white Istrian stone and red Verona marble. This coating is clearly unfinished. The main portal is the work of Jacopo della Quercia, with representations of the Old and New Testaments. On the tympanum sculptures of the Madonna and Child are visible, and of Sant'Ambrogio and San Petronio too. The portal was unfinished: missing the terminating cusp.

The first major renovation which was submitted in modern times the façade dates back to the seventies and had as protagonists Ottorino Nonfarmale, Eugenio Riccomini and Raffaella Rossi Manaresi, at the center of a heated debate; during the nineties they were then carried out a series of maintenance interventions.

(4) *RESTORATION OF SAN PETRONIO BASILICA: FOUR-YEAR PROJECT BETWEEN INNOVATION AND ECO-SUSTAINABILITY*, Dott. Arch. Roberto Terra¹, Dott. Rossana Gabrielli², Dott. Michela Boni³ ¹freelance architect, Studio Cavina Terra Architetti, Bologna; ²architectural archaeologist, Leonardo s.r.l., Bologna; ³restorer and art historian, Leonardo s.r.l., Bologna, in *Built Heritage 2013 Monitoring Conservation Management*, pp. 1461-1471

(5) Bellosi Luciano, *La Basilica di San Petronio in Bologna*, voll. 1-2, Cassa di risparmio in Bologna, 1983





THE ANALYSES AND THE CLEANING OF THE SURFACES

Cognitive campaigns conducted on the structures, the study of historical archival sources, documentation on the restorations and the development of operational protocols, including the experimental and innovative ones, have enabled the collection and systematization of many data, that in many cases were unpublished, useful on scientific level and for the planning of future maintenance.

The restoration work on the stones and on the sculptures of the facade cannot ignore the conservation history that preceded it: much of the current intervention focuses on dialogue with what has been done in the past.

The state of preservation of the facade was discrete, the consolidating product that has been used, known as “mista Bolognese” (acrylic-silicone resin) acquitted in part its function and the stone facing has only required some precise and circumscribed interventions of consolidation or bonding of parts with epoxy resins di-components. The largest work was the accurate cleaning articulated in successive and progressive stages. A first phase of removal of surface deposits, made with soft brushes and with the aid of an aspirator, was

followed by a cleaning by compress with demineralized water, a localized solvent cleaning made by buffer. Particularly tenacious deposits has been removed by laser technology, to obtain a selective removal only of the deposits and the preservation of the patina of oxalate and traces of previous treatments. The operation of filling of the joints and more or less consistent cracks played a major role also for its conservative aspect of bringing them to the level of the stone in order to facilitate the drain rainwater. For the same reason some covers were made of lime-based mortar, earthenware and sand, to make the surface waterproof and reinforced with a honeycomb mesh. The last phase is that of the application of the protective product specially formulated to be laid out on a surface already treated with acryl-silicone resins.

The three sculpted portals and more decorative elements of the facade were subjected to a scanning three-dimensional relief in high precision useful to the acquisition of a perfect virtual model of the entire complex, realized with digital techniques and without direct contact with the elements. Thanks to the model it is possible the material reconstruction work in full-scale, in order of its valorization, study, exhibition, or to prototype partial or integral elements to replace the original in case of loss of the same.

The church square, also in stone, was the subject of a cleaning operation performed with the use of pressure-controlled precision sandblasting machine: a conservative intervention, respectful of the historical monument.

The project also involved the completion of the restoration of the interior chapels of St. Vincent Ferrer, St. Rocco, St. Michael and St. Rosalia-S. Barbara.

Outside, in addition to marble, for which were applied the same methods of the facade, there are pieces of plaster in which were found traces of a decoration, portions of cotto "unfinished" tiles, which also characterizes the upper part of the facade and finally there is the cotto "sagramato", not present in other areas, but particularly important as a surface to be preserved as it contains the traces of the original finish. In fact, the "sagramatura" has characterized much medieval building in Bologna but it remains preserved in very few original examples. A careful diagnostic campaign has brought to the knowledge of materials and of diseases and causes of degradation that characterize both the part in stone that the brick.



For the part stone a special mention should be made to the trial, carried out thanks to the instructions of the Opificio delle Pietre Dure, of sulfate reducers bacteria which have the advantage (even in an environmentally friendly way), to make an extremely controlled cleaning respecting the object, the operators and in the environment in which it operates. At a structural level there were no significant problems except for a large lesion on a capital that was a through lesion and parallel to the surface and has necessitated a bandage with carbon fiber tapes stacked in three layers, glued with di-component epoxy resins, later treated with inert conform to the original for grain size and color.

On the brick part of the wall, after a consolidating process of the “sagramatura” parts with micro injections of acrylic resin diluted, it proceeded with a cleaning with atomizer system that combines the mechanical action obtained by the run-off with the chemical action of the water which slowly dissolves plaster or the secondary calcite, of redeposition, which act as ligands of the black crust and let it be easily removed. The laser has been used to remove black crusts in the lower part of the windows, in correspondence of the brick parts. The use of this nanotechnology has enabled a controlled surface cleaning without the risk of damaging the protective coating present. The joints, in the portions that required it, were grouted with mortar of lime and sand, in accordance with the original.

THE RESTAURO VERDE® SYSTEM

The actions described above were conducted using the Restauro Verde® system, an approach to restoration work (conceived by Leonardo on the basis of guidelines set by the Green Building Council - to which Leonardo joined and with whom is working to define the Protocol of Historical Buildings) in view of environmental sustainability and energy conservation. The growing awareness of environmental issues has led to think that the restoration is necessary to arrive at a sustainable preservation of cultural heritage. Much attention is paid to the control of the environmental impact created by restoration activities, trying to reduce pollution. Specifically, the Restauro Verde® system is divided into four main categories:

- _ The procedures for the evaluation and selection of products to use in the recovery and restoration of the buildings;
- _ The preservation of health and safety of operators and people unrelated to the construction site;
- _ The procedures for a correct management of the works with low environmental impact;
- _ The research and innovation through the realization of research projects for the application of substances, innovative methodologies and tools for the restoration works and for the recovery of the buildings.

According to the same principles great attention is also paid to the reduction of water's use in the cleaning operations, thanks to the use of alternative systems such as spray water and the correct management of discharge.

Another important element for the containment of water consumption is the use of the technology for the microsandrblasting developed by Ibix used in a selective and calibrated way for cleaning or finishing works. This system is much used also for the removal of graffiti in the historical centres.

Clelia La Mantia

Roberto Cigarini



info@melloncelli.it
www.melloncelli.it

ELECTROPHYSICAL DEHUMIDIFICATION OF MASONRY IN THE CHURCH OF SAN PAOLO MAGGIORE. BOLOGNA

A method to contrast humidity problems in masonries

The Church of San Paolo Maggiore in the historical centre of Bologna was built between 1606 and 16011. Inside the building we can see an impressive pictorial decoration.

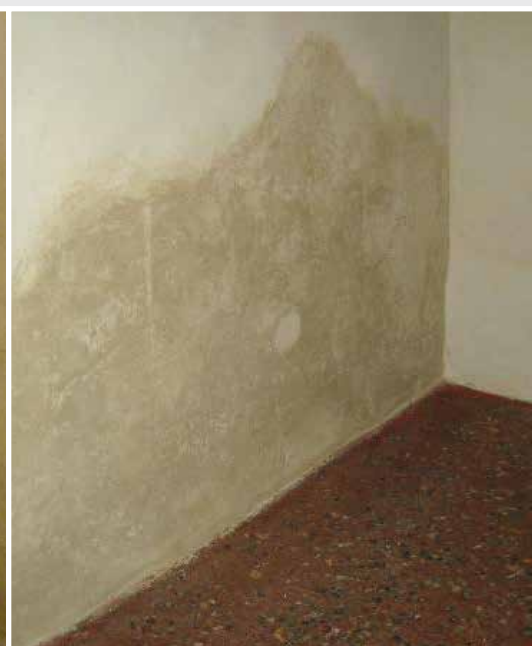
This church had problems due to rising damp in its masonries. For this reason were implemented diagnostic tests to define the exact water content.

To interrupt this phenomenon, Melloncelli company installed three systems inside the building:

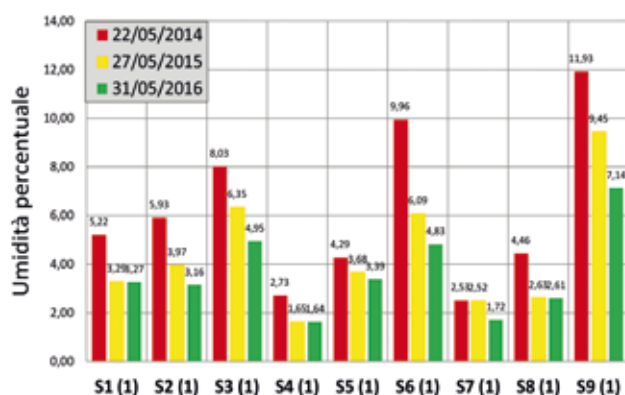
- _ The first one was installed in 2009 and has an effect on (acts on/includes) the front of the church and its bordering parts.
- _ The second one was activated on the 30th of May 2014 (it is called "San Paolo Maggiore 1") to interrupt the process of rising damp that was damaging the sacristy area.
- _ In the other areas, not yet protected, was installed the third and last system on 29th of July 2014 (called San Paolo Maggiore 2).

This system called Tergomatic interacts with the masonries where it generates an electromagnetic field with various rays and has effects on the behaviour of electric charges. In this way an electro physical dehumidification takes place.

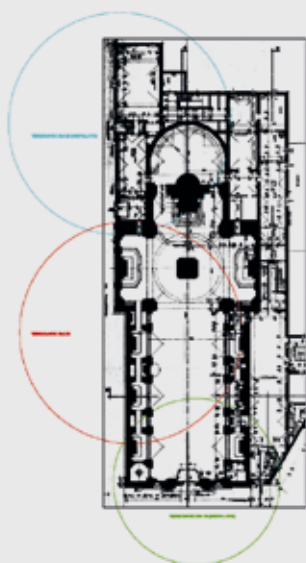
Then, every year, the company measured the amount of humidity by the evaluation of water content in the masonry due to monitor the process of electro-physical dehumidification produced by the second and the third device.



MISURAZIONE UMIDITA' (1)



Carotaggio	Rilievo del 22-05-2014	Rilievo del 27-05-2015	Rilievo del 31-05-2016	Variazione valori umidità
S1 (1)	5,22%	3,29%	3,27%	-37,36%
S2 (1)	5,93%	3,97%	3,16%	-46,71%
S3 (1)	8,03%	6,35%	4,95%	-38,36%
S4 (1)	2,73%	1,65%	1,64%	-39,93%
S5 (1)	4,29%	3,68%	3,39%	-20,98%
S6 (1)	9,96%	6,09%	4,83%	-51,51%
S7 (1)	2,53%	2,52%	1,72%	-32,02%
S8 (1)	4,46%	2,63%	2,61%	-41,48%
S9 (1)	11,93%	9,45%	7,14%	-40,15%



HUMIDITY MEASUREMENTS

The measurement of humidity, as well as measurements of water content can be done with different methods. First of all, is recommended to start with preliminary analysis with the aim of verifying the water distribution in the masonry, it's quality and quantity on the surface and in the area we are testing.

The measurement are made to define the exact water's content in the masonries, reported in percentage to the weight or to the volume of the sample. Before taking samples it is necessary to define the number and the extension of the tests to do inside and outside the masonries and at what depth to take this pieces.

This practice can be done with various methods, that can be classified in two groups: direct and indirect methods. The first ones consist in taking samples from the masonry and then obtaining the different measures, whereas the indirect methods have the advantage to evaluate humidity content in stones without taking any sample.

The Italian legislation gives recommendations about the procedures to evaluate the amount of humidity in natural or artificial stone of Cultural Heritage.

To measure water content has been used the Metodo ponderale (based on weights) according to the Italian legislation which in the UNI 11085:2003 (but even in the European law EN - Conservation of Cultural Property) gives recommendations to apply this method in order to evaluate the water content in natural or artificial stone belonging to the Cultural Heritage.

This procedure consists in weighing the samples at the moment of the extraction and after the exsiccation made in oven or heaters in laboratory. The difference of the weights allows to get the percentage of water content referred to the damp weight, to the dry weight and to the volume.

By this procedure the company could affirm that the reduction of relative humidity was about 40% (tables).

23 MARCH
FERRARA



RESTAURO MUSEI

22 - 24 MARZO 2017

FERRARA FIERE

XXIV EDIZIONE



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Regione Emilia-Romagna



Ministero dello Sviluppo Economico



THURSDAY 23TH MARCH 2017 | FROM 9.30 AM TO 1.00 PM | SALA MASSARI | PAD 4

DESIGN THE RESTORATION AROUND THE WORLD

Chairman: Alessandro Zanini

ABSTRACT. The conference is aimed at introducing some examples of international cooperation centred on the field of restoration design, by means of the internationalization action promoted by the Italian Ministry for Economic Development (MISE), and coordinated by ICE, Agency for the internationalization of Italian companies, as well as by means of models of international cooperation and experiences from some individual companies.

The presentation includes some examples of international projects coordinated by ICE Agenzia and Assorestauro in the period 2013-2017, along with the countries of prospective and priority interest. Some delegates from North America, South America and the Middle East have been asked to report about the opportunities of growth for Italian companies in the market of their respective countries.





PAD 4 SALA MASSARI

CONFERENCES AT THE EXHIBITION OF FERRARA

9.00-9.30	Registration for credits of professional education with Assorestauro staff		
CONFERENCE PROGRAM			
9.30-9.40	Valeria Bernardini <i>MISE</i>	MISE	MISE - Ministry of Economic Development
9.40-9.50	Alessandra Capobianco <i>ICE</i>	ICE	ICE –Italian Trade Promotion Agency: Internationalisation support for Italian restoration companies
9.50-10.00	Ruben Sacerdoti <i>Executive Director of the Smart Desk Regione Emilia Romagna</i>	Regione Emilia Romagna	Emilia-Romagna Go Global 2016-2020. Supporting policy for the internationalization of the companies: the case of Restoration net
10.00-10.10	Alessandro Zanini <i>President of Assorestauro</i>	Assorestauro	Cooperation between association
10.10-10.30	Gianni Silvestrini <i>President of GBC Italy</i>	GBC Italia	Introduction of GBC Italy (Green Building Council) Memorandum of understanding between GBC and Assorestauro
10.30-10.45	Coffee Break		
10.45-11.10	Nicola Berlucchi <i>Council member of Assorestauro</i>	Assorestauro	Internationalization Project 2015-2017 The restoration of the Sheik Souleyman’s Mosque in Istanbul
11.10-11.35	Andrea Griletto <i>Technical director of Assorestauro</i>	Assorestauro	Internationalization Project 2015_2017 The Cooperation Between Cuba and Italy: REDI project in La Havana
11.35-11.50	Marco Caffi <i>Executive Director GBC Italy</i>	GBC Italia	Firsts experiences of internationalization: REDI project and Build Upon
11.50-12.15	Carlotta Cocco <i>Vice coordinator of the GBC HB Protocol</i>	GBC HB	Minimum environmental standards applied on the His- toric public buildings
12.15-12.45	Carla Di Francesco <i>General Director of Regional Directorate of BCP of Emilia Romagna, MiBACT Ministry of Cultural Heritage and Activities and Tourism</i> Andrea Valentini <i>GBC HB Accredited Professional</i>	GBC HB	MEIS, National Museum of Italian Hebraism and Shoah
12.45-13.00	Memorandum of understanding and Agreement with the international delegation		
Signature at exit for CPE			





24 MARCH
VENEZIA

Emiliano Martino

Francesco Trovò
*Superintendence of Archeology,
Fine Arts and Landscape
for the City of Venice and Lagoon*

FRAGILE VENICE. HOW THE CHANGES OF THE LAGOON CITY ARE WEARING IT

The book "Fragile Venice. Processes of wear on the urban system and possible mitigations" is the result of an intense scientific activity carried out by a work group coordinated by Professor Paolo Gasparoli and by the Department for Protection of the Architectural and Landscape Heritage of Venice and its Lagoon. The Head of Department architect Renata Codello, the architect Francesco Trovò and the architects Giorgio De Vettor and Katia Basili, both UNESCO office managers, were involved.

The research identifies, defines and analyses the processes and factors of "wear" (that is to say, all those dynamics of transformation of the city that cause alterations to the equilibrium of the urban system), mainly caused by anthropic pressure on a system of great historical and environmental importance that is famous worldwide, aiming to identify appropriate criteria for measuring, monitoring and mitigating these pressures.

Caused by various factors, the phenomena of wear investigated under this study have a



physical nature, like the wear of the banks and edge of the canals, of the paving and of the building structure, and a perceptive nature, like the overcrowding and the changes in the consolidated image of the city, in the urban vitality and in the open space's quality of use. These can be attributed to all the dynamics of transformation of the urban environment caused by a wide variety of human activities (real estate owners, users, operators, tourists, etc.) that use it and consume it with different levels of awareness and in various ways, some of which are at times contradictory, and in effect inescapably become an "implicit project" on the existing structure.

From a methodological point of view therefore, three levels of description of the critical factors of the site were identified and can be summarized as follows:

- _ Phenomena: these identify all the dynamics of change that manifest themselves as actions that generally cause wear on the old town centre, leading to alterations in the equilibrium of the physical and social system and loss of material and/or significance of the urban fabric through negative perceptions, unsatisfied expectations, perceptive problems or problems linked to settlements, dissonances and inadequacies.
- _ Correlations: these are the main relationships that are established between the phenomena and constitute the indicators of risk generating macro-emergencies.
- _ Macro-emergencies: these are the categories of problems or theme areas that have a negative bearing or could have a negative bearing on protection of the lagoon and preservation of the site on a systemic level.

The elements of criticality that can be seen in the Venetian system derive from the knowledge that some equilibria in the lagoon have changed profoundly over past decades, determining new models of use in the entire land and water system of the old town centre.

In particular, it is the continuous increase of the number of tourists that has brought some negative effects. These has led to an increase in traffic on canals, both transportation of people and goods, the congestion of certain routes, the changes in the use of certain buildings and changes in local commercial activities. Furthermore the resident population has experienced a significant shift towards the mainland due to economic issues linked to the real estate market and because the site became such a huge tourist attraction. This led inhabitants to transfer their place of residence, selling any real estate they owned and purchasing residential properties on the mainland that were likely much larger and more "modern" than those in the old town centre. Consequentially, the properties that became

available and were put on the open market were frequently reused for activities that support tourism.

However, although the quantitative problem of tourism is without doubt inescapable and has also been widely analysed, it is important to note that to date it has not been possible to implement concrete actions directly targeting the regulation of tourist flows, mainly due to the practical difficulty of limiting the number of tourists entering the city.

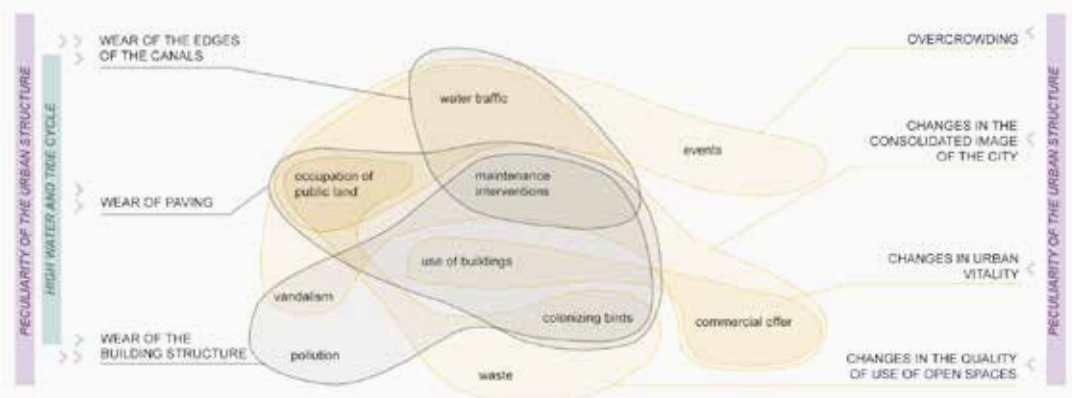
Moving from detecting factors of risk to planning and implementing mitigating actions must necessarily be mediated by a constant and precise monitoring activity. This is the key to acquiring the information needed by the responsible authorities and other stakeholders in order to assess the effectiveness of the strategies in achieving the pre-established objectives and suggesting, modifying or adapting processes and actions.

In other words, the outcomes of monitoring should influence the definition of programmes and public policies that target the protection and preservation of the site based on the principles of safeguarding the identity and authenticity of the old town centre of Venice, which can be implemented in order to counter or at least contain the negative effects.

Diagram 1 - Description of the phenomena and their correlations with the aim of identifying the macro-emergencies. The main correlations between the phenomena are highlighted in the intersections of the right-hand matrix

SETTLEMENT SYSTEM	TYPE OF PHENOMENON	PHENOMENON
Built-up system	Phenomena linked to models of use of the city	Change in the composition of the resident population
		Abandonment of housing
		Change in the percentage ratio between residences and service activities (commercial/hospitality)
		Changes in the type of commercial offer and goods for sale (type and place)
		Change in the structure of the types of spaces for the renewal of premises
		Change in the number, size and type of public maintenance intervention initiatives on surfaces
	Phenomena linked to tourism	Change in the number, size and type of private maintenance interventions on surfaces
		Changes in the size of tourist flows
		Changes in the city's cultural offer
		Concentration of presences in certain physical places (emergencies)
	Phenomena linked to the environment	Presence of favoured routes for approaching and crossing the city
		Change in the use of urban space in relation to tide cycles
Canal system	Phenomena linked to models of use of the city	Changes in the quantity of pollutants released into the air
		Changes in the type and intensity of smells produced
		Change in the waste produced (quantity and place)
	Phenomena linked to tourism	Change in the quantity and composition of colonizing bird species
		Changes in the number and type of craft used to transport goods and waste
		Changes in the number and type of craft used to transport people for private transport
		Change in the number and type of maintenance interventions on the bottoms of canals, banks and dolphins
	Phenomena linked to the environment	Changes in the number and type of craft
		Change in the number and frequency of moorings
		Change in the quantity of sedimentary deposits
		Change in the quantity of pollutants dissolved in the waters

Diagram 2 - Aggregation of the macro-emergencies by category of wear. In yellow are the categories of perceptive wear, in grey are those of physical wear. Among the conditions surrounding these, in purple are those linked to the urban system and in green those connected to the canal system





© Photograph by Delfino-Sisto-Legnani-and-Marco-Cappelletti

25 MARCH
VENEZIA

Emiliano Martino

Marzio Mazzetto
Veronica Ciuffi



info@sacaim.it
www.sacaim.it

THE RESTORATION OF THE FONDACO DEI TEDESCHI: FROM THE TOP TO THE BOTTOM

After the Doge's Palace, the largest building on the Grand Canal near Rialto is the former Fondaco (or Fontego) dei Tedeschi. Functioning since 1228, it served as the warehouse for all commercial goods coming from Northern Europe and as a guest house for both merchants and prominent guests from the German countries (for instance, Dürer). There were two dining halls (one for the summer and one for the winter), several meeting rooms, and all what was needed for a self-sufficient foreign colony. In brief, the building housed a monastery, a commercial community and a real village at the same time. Rebuilt in 1505 after a fire at the Serenissima's expense, the edifice stood in the neighbourhood of the most important trading hub of the city and was functionally integrated with the commercial distribution by means of a number of shops lined along two streets on the ground floor. On the other hand, the building inevitably maintained a privileged relationship with the traffic on the Grand Canal, as one can easily infer by the partition of the front in three sections, the central one being characterized by a tall and deep five-arch porch on the ground floor, opening onto the water to welcome people and goods. Once, this façade used to bear frescoes executed by Giorgione, while another façade along one of the streets was decorated with frescoes by Titian, but both cycles are now missing. The walls of the inner courtyard used to be interspersed with a row of arches progressively reduced in height, which opened onto arcades and loggias, whose masonry mass they helped lighten. The most significant changes were made during restoration works between 1928 and 1939, aimed at adapting the building to its new destination as central post office. The structures were consolidated with the introduction of reinforced concrete elements into masonry for load bearing purposes; the floors were replaced or reinforced; the roof was totally replaced with a new reinforced concrete truss covering.



Thanks to the restoration and functional rehabilitation designed by OMA architects, the Fondaco dei Tedeschi – today the property of Benetton group – has become a commercial area and houses the shops of the luxury brand LVMH, as well as some other areas open to the public.

The restoration works were entrusted to Rizzani de Eccher and Sacaim. They included several interventions, among which the restoration and raising of the original roof to accommodate a new multi-purpose area and the execution of a global protective system against the “high tide” – a recurrent seasonal event in Venice – are certainly worth mentioning.

OMA’s design included the elevation of the 19th century steel and glass roof to make room for a new volume to be used for public events. The original roof was lifted by 1,6m and propped up with new steel pillars, which are longer but as wide as the original ones. Another row of pillars was added to guarantee greater stability against seismic vibrations. The 19th century roof was disassembled and brought to the restoration workshop to check its profiles, nails, tie rods and all anchorages. Any weak elements or connections were replaced or reinforced, with a view to adapting the whole structure to the current standards. Period glass elements were replaced with new glass to guarantee ultimate comfort inside the multi-purpose area. This new “glazed room” was suspended on top of the central courtyard with the help of a 60cm high steel beam network (HSA 538/168). Access to the area is ensured by lifts and an escalator, which reach a gallery with a new flat top running from the ridge line of the original roof to the central pavilion, obtained after the demolition of the under pitch.





The building was “defended” against the action of exceptional tides as high as +2,00 above sea level as compared to the zero reference point of Punta della Dogana. The protective system consists in a basin with a specially conceived concrete conglomerate bottom and – wherever required – side walls. This special conglomerate features high mechanical resistance and controlled shrinkage; moreover, silica fumes were added to the mix so as to obtain a more compact matrix as compared to traditional concrete.

The courtyard columns have been lifted and the waterproof basin has been stretched below their stands.

The new reinforced concrete elements, including the cable tunnels, lift and elevator shafts, have been executed with the same technology and the same materials; they have been connected to the structure of the basin and all joints have been waterproofed with “seams” and hydrophilic resins. On the other hand, any extant reinforced concrete structures, as well as spine walls and load-bearing walls in general, have been finished with fibre-reinforced non-shrink waterproof plaster. All in all, these interventions helped obtain two results at a time, that is the whole foundation system was waterproofed and consolidated.







Emiliano Martino

Marzio Mazzetto
Veronica Ciuffi

THREE INTERVENTIONS IN THE “SEMINARIO PATRIARCALE” IN VENICE


info@sacaim.it
www.sacaim.it

The building of the Patriarchal Seminary (in Italian Seminario Patriarcale) was built in 1671 for the Somaschi fathers starting from one of the Trinity monastery's existing cloisters. After the banishment of the Jesuits from Venice, the role of aristocracy's educators of the Serenissima was assigned to the Somaschi fathers. Some lands on Punta della Dogana were grant to this Order, where it will build, along with the college, the church of Santa Maria della Salute. Both buildings, although visually separated, are part of a single representative and devotional program, wanted by both the Republic and the Somaschi fathers. The entire project was designed by Baldassarre Longhena, one of the main venetian architects of XVII century.

The college is built on five levels around a square-shaped colonnaded courtyard, and it's composed by a monumental body flanked by other buildings. In plan the Seminario evokes the monastery's type, but mixed with some elements taken from the civil palaces. The design was then adapted to the different program and to the tight shape of the site. These qualities make the building an authentic new invention. The college's façades strike for the linguistic poverty, for the lack of sculptural elements and in which the horizontal lines prevail on the vertical ones, with the aim, probably, to exalt the near Salute's mag-

nificance and to be alternative and a contrast to the aristocratic palaces' sumptuousness. After about only one century it became clear that the educative experiment that the Somaschi proposed was a failure because it wasn't able to attract students from the higher classes; therefore all their schools were closed. After the monastery's suppression in 1810, the Patriarchal Seminary, that once was based in the Murano island, moved to the building. Since this new function was similar to the previous one, the building was altered only in few parts. Transformations went on until the middle of the XX century and included: the closure of the courtyard between the church and the Seminary, the restoration of the Trinity oratory, the creation of a new garden divided into small courtyards for the recreation time of the students, the construction of many new rooms and a new specola, an astronomical and meteorological observatory.

The detailed restoration proposals for the XVII century's building by Longhena was designed by the architect Stefano Battaglia and the final proposals and the construction works were carried out by the Sacaim company with other associated companies in minority share. Three interesting interventions regarded the pavement of the third floor above the historic library, the repositioning of the altar of the Trinity chapel and the creation of a ventilated wall for the lapidario, in the cloister.

Among the slabs that have been reinforced the one above the historic library is the widest one and it also supports the high quality decorated ceiling of the underlying space. After the interventions of XIX and XX century, some steel tie bar were placed connecting the timber trusses to the slab's beams, to put an end to the continuous structural failures and to the beam's bending. It was necessary to remove these tie bar to make the third floor usable again. The intervention performed the removal of the low quality pavement and the reinforcement of the so revealed extrados by gluing on it some layers of wooden boards using epoxy resin, until the slab became flat. In this way the cross section in the points of maximum loads was improved. Then two layers of 2,5 cm thick plywood boards were glued. In this way continuous "T" sections with flanges 5cm thick were created. The tie bar were left until the new structure was placed, then they were removed. In this way there weren't dangerous adaptations of the structure and, consequently, of the library's decorated ceiling.



Among the interventions made inside the Trinity chapel, the most interesting is the conservation and repositioning of the altar made of polychrome marbles. The repositioning was performed to change the axis of the chapel. In this way the visitors that enter from campo della Salute (the square in front of the Seminario), can immediately admire the stone altar that is illuminated by the windows overlooking the campo.

First of all the altar was pre-consolidated with the application of a protective coating made of filmy paper and gauzes, then the deposits were removed. The barely cohesive painted films and gildings were stuck again provisionally with japanese paper and acrylic resin. At this point the altar could be removed and all his parts named and mapped. All the pieces were impregnated into basins full of ethyl silicate, which was applied also with brushes, syringes and little pipes, to reinforce them permanently. Then the gauzes and the filmy papers were detached with the aid of an appropriate solvent. The cohesive surface deposit, the encrustations and the soluble stains were removed both with nebulized water and pills soaked with inorganic salt solutions, ammonium carbonate and bicarbonate. The chips and the scales with limited dimension and weight were stuck again with epoxidic resin and gauzes on the back. At last the altar was plastered and microplastered with a compatible mortar and everything was consolidated using polioxane. After these interventions the altar was finally set in the new location.





Before the works, a number of stone artefacts of high artistic and historic value were scattered here and there in the epigraphic museum (lapidario), secured with mortar onto the cloister's masonry walls.

The walls had undergone repeated interventions of partial rehabilitation over time, although the problem of rising damp and resulting efflorescence had never been solved, so that the masonry was saturated with salts.

To start with, the artefacts were dismantled, desalinated by immersion in special baths, and restored.

It was clear that any plaster applied onto the masonry would have peeled off soon after, considering the state of deterioration. It was therefore suggested to the Direction of the Architectural and Environmental Heritage to adopt a new and unusual approach in Venice. The idea was to make a totally reversible intervention aimed at obtaining a durable surface capable of receiving the designed finish. An insulating false wall consisting of a stainless steel framework adapted for outdoor environments was fastened to the masonry with insulating plastic dowels and neoprene supports, to ensure that humidity will not attack the framework and covering panels.

Once the guidelines for the structures were laid, the stone artefacts were relocated according to a new arrangement based on historic documentation. The artefacts were fastened by means of stainless steel stirrups and inserted into the neoprene supports for insulation purposes. Then, 8-9mm thick magnesite slabs were installed and finished with paintings to conceal the lack in coplanarity of the surfaces.







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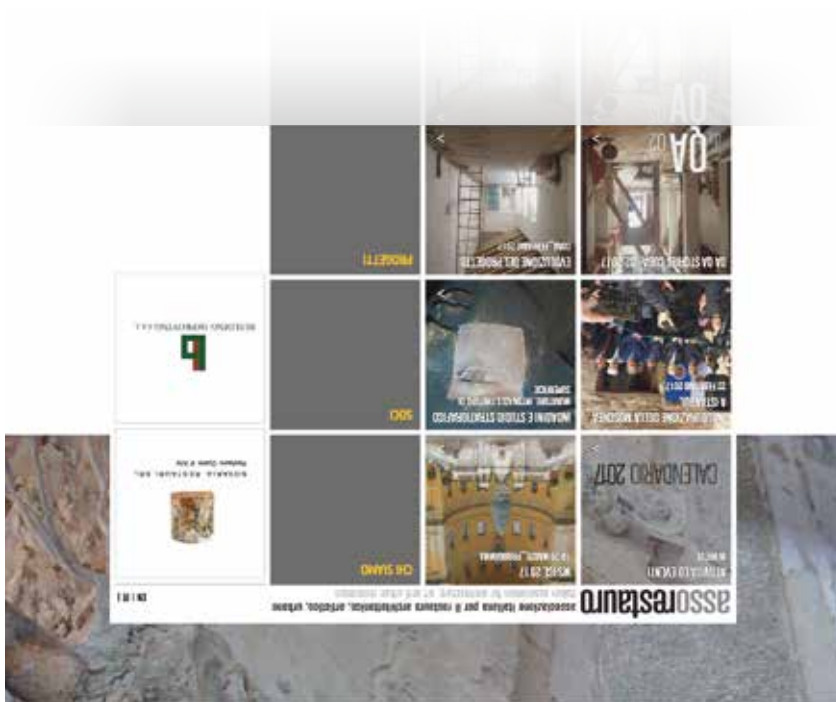


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Via San Quintino 18 - 10121 Torino
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VGS COSTRUZIONI

La Xilux, nata a Bari, Italia, nel 2008, progetta e realizza serramenti, portoni e porte in legno, combinando l'antica sapienza artigianale con la moderna efficienza industriale. Flessibilità dell'organizzazione, qualità dei materiali e rispetto per l'ambiente sono i punti fermi dell'operato di Xilux, per garantire la massima soddisfazione ai clienti e proporre un partner affidabile nel mercato italiano ed estero. L'azienda ha sviluppato esperienze specifiche nella realizzazione di serramenti di legno, spesso interessati da vincoli di progetti di restauro e recupero funzionale di fabbricati di pregio, spesso interessati da vincoli storici, architettonici e paesaggistici. Lavori così complessi sono gestiti da un team composto da architetti, ingegneri ed esperti, in grado di progettare in modo coerente con il valore storico delle costruzioni. Xilux, which has been established in Bari, Italy, since 2008, designs and manufactures a wide range of wooden indoor and outdoor fixtures, resulting from the perfect combination between the well-established technical expertise of our artisan carpenters and the most modern automation industry. Flexibility, accurate choice of materials and environmental friendliness are some of Xilux pillars allowing us to meet the needs of the most discerning customers as well as to represent a reliable commercial partner both for Italian and foreign markets. The company has developed an outstanding know-how in the field of restoration of internal and external wooden fixtures, in projects of restoration of buildings of historical and cultural interest, subject to the Department of Cultural Heritage and Environmental Protection. For such challenging projects, Xilux collaborates with architectural firms, skilled engineers and specialists in designing windows consistent with the specific historic value of each and every building.

La VGS Costruzioni fonda le sue radici in oltre 40 anni di esperienza nell'ambito delle costruzioni, manufatti, ristrutturazioni di immobili a destinazione residenziale, terziaria ed industriale. Negli ultimi anni l'azienda si è contraddistinta nella realizzazione di interventi di restauro, riqualificazione, recupero e valorizzazione di immobili di particolare pregio, acquisendo una comprovata esperienza in tale ambito. Lo spirito imprenditoriale, unito all'alta professionalità del suo staff e del suo collaboratore, ha permesso all'azienda di strutturare costantemente l'evoluzione di nuove tecniche, tecnologie e materiali applicati al settore. VGS Costruzioni è inoltre strutturata per partecipare ad appalti pubblici, disponendo di attestazione SOA e di un sistema qualità certificato. Si propone come partner affidabile, finanziariamente stabile, desideroso di ottenere la migliore qualità conseguibile. VGS Costruzioni lays its foundations in more than 40 years of experience in the construction, maintenance, renovation of residential structures, service industry buildings and industrial constructions. In recent years, the company has particularly stood out for its work of restoration, redevelopment and lamination and enhancement of particularly valuable properties acquiring great experience in this field. The entrepreneurial spirit, together with the high level of professionalism of the staff and collaborators enabled the company to constantly exploit the evolution of new techniques, technologies and materials applied to this sector. VGS Costruzioni is structured and organized to take on public contracts, and is in possession of SOA certification and a certified quality system. The company proposes itself as reliable and financially stable partner who is always dedicated to obtaining the best possible quality.

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CERTIFICAZIONI: Di prodotto
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FILIALI: Cisterna di Latina (LT)

L'azienda nasce nel 1977 con il nome "SANA CASA", l'attività principale era il recupero delle muraure contro l'umidità capillare ascendente. Nel 1987 deposita il proprio sistema e marchio "UMIBLOK" ed inizia la produzione di attrezzature specifiche per l'edilizia. L'azienda si estende, partecipa a fiere specializzate nel settore, è conosciuta sia in campo nazionale che estero, esegue lavori di massima importanza su monumenti e presenta svariati brevetti. Dal 1998 la ditta "SANA CASA" viene conferita nella "UMIBLOK S.r.l.", la quale continua la stessa attività e brevetta un nuovo taglia-muro il quale oltre a creare una barriera impermeabile alla base della muratura contro l'umidità di risalita, riesce ad assorbire le vibrazioni provenienti dal sottosuolo.

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UNICALCE SPA

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Via Ponti 18 - 24012 Brembilla (BG)
Tel. +39 0744 756040 - Fax +39 0744 756029
premier@unicalce.it - www.premierpremiscelati.it

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Dallo studio alla diagnostica, dalle tecniche di restauro ai metodi per la valorizzazione, l'Università del Salento lavora a tutto campo sui beni culturali, con competenze diffuse in tutti i Dipartimenti. L'Ateneo salentino si impegna, parallelamente, nella formazione di professionisti competenti nelle varie attività di studio, tutela, vigilanza, conservazione e messa in valore dei beni culturali. Le attività didattiche, infatti, traggono sempre nuova linfa e continuo aggiornamento proprio dalla ricerca condotta da docenti, ricercatori e tecnici qualificati, costruendo così un circolo virtuoso tra aule, laboratori (ben attrezzati con strumentazione all'avanguardia) e territorio in senso ampio. From theoretical studies to diagnostics, from restoration techniques to valorisation practices, the University of Salento is widely involved in Cultural Heritage themes, with competence spread in all Departments. The University of Salento is, in parallel, involved in the professional training of experts possessing high competence in different activities aimed at studying, preserving, supervising, conserving and valorizing Cultural Heritage. The teaching activities, in fact, always draw new life and continuous updating from research conducted by well qualified professors, researchers and skilled technicians, which builds a virtuous circle between classes, laboratories (supplied with the most up-to-date equipment and instrumentation) and the territory in a broad sense.

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ANNO DI FONDAZIONE: 1978

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La SPC s.r.l. ha sviluppato nel corso degli ultimi 25 anni una esperienza unica ed un know-how interno specifico raggiungendo l'eccellenza nel campo dell'ingegneria strutturale con una esperienza oramai riconosciuta in tutto il mondo nella conservazione delle strutture e delle architetture del patrimonio culturale mondiale. Soci e rappresentanti legali sono: l'ing. G. Croci, l'ing. A. Bozzetti, l'ing. F. Croci, l'ing. A. Herzalla e l'ing. C. Russo. Le attività principali includono: l'analisi ed il rinforzo strutturale di edifici esistenti, la progettazione di strutture moderne ad elevata complessità utilizzando tecniche e materiali all'avanguardia, il restauro ed il consolidamento di monumenti, indagini e diagnostica di strutture e materiali in uso e in sito, project management di progetti di ingegneria civile ed architettura.

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Tel. +39 0832 307085 - Fax +39 0832 307085
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www.studioaerrekappa.com

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ANNO DI FONDAZIONE: 2011 (2003)

Studio AERREKAPPA S.R.L. progetta, dirige e realizza lavori di restauro di edifici storici e di ristrutturazione di immobili privati e pubblici, con materiali e tecniche innovative qualiintonaci e pavimenti biocompatibili, impianti termici a parete e a pavimento, illuminazione tramite LED, sistemi domotici, pannelli solari, sistemi di climatizzazione ad evaporatori passivi e camini solari. Sensibile alle problematiche del risparmio energetico e di una architettura ecosostenibile, opera a Lecce dal 2011 come naturale evoluzione dello Studio Associato fondato nel 2003 da Cristina Caiulo, architetto, e Stefano Pallara, ingegnere.

Studio AERREKAPPA S.R.L. was founded in 2011 by Cristina Caiulo, architect and Stefano Pallara, engineer. Its field is the restoration of historical heritage and the renovation of private and public property, paying attention to the problems of energy saving with innovative technical plants, especially of lighting system, domotic technique, solar panels, air conditioning systems and evaporators passive solar chimneys.



STUDIO ASSOCIATO DI ARCHITETTURA
CARAFA E GUADAGNO

Via Fulvio Ranella 113 - 81100 Caserta (CE)
Tel. +39 0823 329066 - Fax +39 0823 329066
cgastudio@libero.it

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Lo Studio Associato di Architettura Carata e Guadagno opera nel settore tecnico/progettuale, in particolare nel campo del restauro, avvalendosi delle prestazioni professionali di tecnici qualificati, regolarmente iscritti ai rispettivi Ordini o Collegi di appartenenza.

A fronte di una esperienza operativa plurennale, lo studio si è specializzato, nelle prestazioni tecniche afferenti opere ed interventi di nuova edificazione, restauro, riadeguamento, risanamento, ristrutturazione e riutilizzo funzionale di complessi monumentali, civili, pubblici, industriali e terziari.

Studio Associato di Architettura Carata e Guadagno (CGA) operates in the technical and design field, with a strong focus on the restoration area. The architecture firm is supported by a number of professional services provided by qualified technicians, who are legitimately registered with the respective professional bodies. Thanks to the long time experience accumulated, CGA specializes in the all types of professional duties required for the preparation of design and technical documentation. The expertise in this area covers both the initiation of new buildings as well as restoration, adaptation, improvement, renovation and functional reuse of pre-existing ones.



Via Soncin Rotto 4 - 25122 Brescia
Tel. +39 030 291583 - Fax +39 030 45248
nicolaberlucchi@studioberlucchi.it
www.studioberlucchi.it

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STUDIO BERLUCCHI Srl

ANNO DI FONDAZIONE: 1981

La Società Berlucchi srl venne costituita nel dicembre 1981 dai Fratelli Francesco e Roberto Berlucchi proseguendo l'attività professionale del padre Ing. Antonio. Oggi, la Società si occupa di Progettazione e Restauro e si suddivide in 2 settori distinti. L'ing. Roberto Berlucchi è responsabile del settore Progettazione, mentre il figlio, Ing. Nicola Berlucchi coordina il settore Restauro. Lo Studio Tecnico della Società Berlucchi può contare su un organico composto, oltre che dai due soci, da un gruppo di nove collaboratori tra ingegneri, architetti e geometri. The company Berlucchi srl was established in December 1981 by the brothers Francesco and Roberto Berlucchi, carrying on the professional activity of their father Ing. Antonio. Today, the company works on new buildings and on restorations and is divided in two sections: Eng. Roberto Berlucchi is responsible of the Designing division, meanwhile his son, Eng. Nicola Berlucchi is responsible of the Restoration division. The designing team is composed by two senior partner engineers and nine employees (engineers, architects and technicians).

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SACAIM SPA

Via Righi 6 - 30175 Marghera (VE)
Tel. +39 041 2581911 - Fax +39 041 5328217
info@sacaim.it - www.sacaim.it

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SANSONE SRL

Via di Vicano, 4 Loc. Massolina
50060 Pelago (FI)
Tel. +39 055 8311077 - Fax +39 055 8311068
info@sansone srl.it - www.sansone srl.it

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MARCO PAOLO SERVALLI STUDIO DI ARCHITETTURA

Via Cadorna 4 - 24128 Bergamo
Tel. +39 035 400156
segreteria@servalliarchitettura.it
www.servalliarchitettura.it

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SOING

STRUTTURE & AMBIENTE

SOING. STRUTTURE E AMBIENTE SRL

Via Nicolodi 48 - 57121 Livorno
Tel. +39 0586 426710 - Fax +39 0586 443552
soing@soing.eu - www.soing.eu

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ANNO DI FONDAZIONE: 1920

CERTIFICAZIONI: ISO 14001/UNI EN ISO 14001:2004
ISO 9001:2008
OHSAS 18001:2007

Fondata nel 1920, SACAIM si è distinta fin da subito in quella che poi sarebbe diventata la sua attività caratterizzante: il restauro conservativo. Nel corso dei decenni i suoi interventi hanno ridato splendore ai più preziosi palazzi di Venezia e riportato all'originale bellezza alcuni tra i più importanti monumenti in Italia. Attenzione particolare anche per le opere marittime, irripetibili ed acquisite in un'edilizia civile e nelle infrastrutture. Soon after it was established in 1920, SACAIM started to excel in what was meant to become its core business: conservative restoration. Over the last decades, the company has committed to restore to their original splendour the most prestigious buildings in Venice and some of the most important monuments in Italy. Great care has also been given to projects in other sectors, including maritime works and aqueducts, as well as civil construction and infrastructures.

SANSONE S.r.l. si propone come una solida realtà in grado di offrire un servizio del massimo spessore professionale per la realizzazione di restauri, pitture e decorazioni, pavimentazioni artistiche e stucchi, combinando tecniche nuove e conoscenze antiche nel nuovo colore del tempo. SANSONE S.r.l. presents itself as a stable reality which can offer the highest professional quality service for restorations, paintings and decorations, artistic flooring and stucco work, combining new techniques and traditional knowledge in the new color of time.

ANNO DI FONDAZIONE: 1998

Marco Paolo Servalli ARCHITETTURA, specializzato nel restauro di edifici storici e di culto e nella valorizzazione di immobili di pregio, sia pubblici che privati. Ogni progetto è eseguito con la massima professionalità al fine di restituire i manufatti antichi all'uso contemporaneo salvaguardandone gli elementi originali. Il metodo di lavoro mira a qualità a al rispetto dei tempi, e lo studio si avvale di collaboratori esperti e affidabili. Progettazione architettonica e direzione lavori, sia in Italia che all'estero. Altre aree di competenza: progettazione del paesaggio, riqualificazione aree urbane, progetti per il Fund Raising.

Marco Paolo Servalli ARCHITECTURE, specialized in the restoration of historic and religious buildings and the enhancement of prestigious properties, both public and private. Each project is executed with the utmost professionalism in order to restore the historic building to contemporary use while preserving original characteristics. Our working method is focused on quality and on timeliness, and the firm avails itself of expert and reliable collaborators. We carry out architectural design and construction supervision, both in Italy and abroad. Other areas of expertise include: landscape design, urban regeneration, and fund raising projects.

CERTIFICAZIONI: ISO 9001 - ISO 14001

Società di servizi per la DIAGNOSTICA ed il MONITORAGGIO applicate all'architettura, all'ingegneria, alla geologia, all'agricoltura di precisione. SOING ha sviluppato negli anni un APPROCCIO INNOVATIVO per la progettazione e la realizzazione dei propri servizi tenendo al centro le tecniche di indagine geofisiche di tipo indiretto, e per tanto classificabili come non invasive, applicate senza l'estrazione di campioni e senza l'alterazione irreversibile delle superfici. A provider of DIAGNOSTICS and MONITORING services applied to architecture, engineering, geology, archaeology and precision farming. Over the years, SOING has developed an INNOVATIVE APPROACH to engineering and executing monitoring services, with a special focus on indirect – and therefore non-invasive – geophysical survey techniques, where sample collection and the resulting irreversible alteration of finishes are successfully avoided.



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PIMAR SRL

Via Manzoni 36 - 73020 Cursi (Le)
Tel. +39 0836 483285 - Fax +39 0836 429926
info@pietraleccese.com - www.pietraleccese.com

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ANNO DI FONDAZIONE: 1994
CERTIFICAZIONI: Certificazione DNV per il sistema di gestione di qualità aziendale ISO 9001-2008

Pimar S.r.l. nasce nel 1994 come naturale continuazione dell'attività della famiglia Marrocco nel settore della pietra leccese, che affonda le radici nel secolo scorso. Il know-how aziendale maturato è assai elevato e si tramanda da 150 anni. Gli attuali vertici aziendali, i fratelli Giuseppe, Giorgia e Daniele Marrocco, insieme al padre Salvatore, attuale presidente, hanno sviluppato ed innovato l'azienda, sempre all'insegna della ricerca, sperimentazione, progettazione e comunicazione, dedicando risorse economiche e personali per valorizzare quella che si può proprio definire una "pietra di famiglia", affinché possa continuare a soddisfare al meglio ogni esigenza architettonica ed essere impiegata in sempre più numerosi e nuovi contesti.

Pimar S.r.l. was born in 1994 as a natural continuation of the Marrocco family's activity in the field of the natural stone from Lecce, which has its roots in the past century. The company gained know-how is very high and has been handing down for 150 years. The present company leaders, the brothers Giuseppe, Giorgia and Daniele Marrocco, together with their father Salvatore, who is the current president, have developed and evolved the company, always characterized by research, experimentation, planning and communication. They allocate financial and personal resources in order to give value to what can be really defined a "family stone", so that it can go on doing the best to meet any architectural requirements and to be employed in more and more different new contexts.



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REALE RESTAURI DI FORCONI CRISTINA

Via Ormea 67/B - 10121 Torino
Tel. +39 011 6694675 - Fax +39 011 6694675
reale restauri@tiscali.it - www.reale restauri.com

ANNO DI FONDAZIONE: 2000
CERTIFICAZIONI: Eccellenza artigiana Regione Piemonte

La nostra azienda è specializzata nel restauro di metalli, vetro e lampadari storici. Si eseguono lavorazioni su lampadari di qualsiasi genere, dimensione e stile, e soprattutto quelli tipici della tradizione storica italiana come ad esempio i lampadari veneziani di Murano e i lampadari in cristallo Maria Teresa o Impero. Il cliente, pubblico o privato, può contare sul nostro supporto per il restauro conservativo e museale, il tutto eseguito con alti standard di qualità artigianale. Azienda accreditata presso le Sovrintendenze.

Our company is specialized in the restoration of metal, glass and historic chandeliers. We carry out work on lamps of any kind, size and style, and especially those typical Italian history such as Murano and Venetian chandeliers crystal chandeliers Maria Theresa or Empire. The client, public or private, can count on our support for the restoration and museum, all executed with high standards of quality craftsmanship. Company accredited by the Sovrintendenze.



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RESTAURI SRL

Piazza della Vittoria 6 - 16121 Genova
Tel. +39 010 2462978 - Fax +39 010 2462978
restauri@panet.it - www.restauri.eu

ANNO DI FONDAZIONE: 1998
CERTIFICAZIONI: ISO 9001 - SINCERT SGS

Restauro di intonaci policromi e di decorazioni materiali lapidei-consolidamento strutture murarie e opere lignee-deumidificazione e impermeabilizzazione di strutture murarie. Restoration of polychrome plasters and decorations-stones-consolidation of wall and wood structures-repairs, dehumidification and waterproofing walls.



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RÖFIX SPA

Via Venosta 70 - 39020 Parcines (BZ)
Tel. +39 0473 966100 - Fax +39 0473 966150
office.partschins@roefix.com - www.roefix.com

ANNO DI FONDAZIONE: 1982
CERTIFICAZIONI: Ambientali: ANAB / ICEA - Natureplus

FILIALI: Parcines (BZ), Prevalle (BS), Comabbio (BA), Villanova (CN), Fontanafredda (PN)

Risanamento, restauro con un'attenzione costante per la bioedilizia, pitture, rivestimenti e sistemi di isolamento termico per esterni. Calcestruzzi, massetti e fondi di posa.

Repairs and restoration (with constant attention to bio-building, paints, coverings and thermal insulation systems for exteriors. Concrete, footing and foundations.

A

odi Opificio della Luce
LIGHT IN ART

OPIFICIO DELLA LUCE

2 Via Mirandola 37/A
37026 Settimo di Pescantina (VR)
Tel. +39 0442 3610239
Fax +39 0442 3610239
5 opificio@luceluce.it
www.opificio@luceluce.it

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PESSINA COSTRUZIONI SPA

3 Via Nizzoli 4 - 20147 Milano
Tel. +39 02 483341 - Fax +39 02 48302245
segreteria@pessinacostruzioni.it
www.pessinacostruzioni.it

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PGL DI DOT.T.SSA NADIA PASTORE

3 Via Per Locco 2 - 28898 Stresa (VB)
Tel. +39 347 2985008 - Fax +39 0323 33247
nadiapastore@virgilio.it

E



PIACENTI SPA

1 Via Marradi 38 - 59100 Prato
Tel. +39 0574 470464 - Fax +39 0574 471021
3 piacenti@restauratori.com - www.restauratori.com

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ANNO DI FONDAZIONE: 1954
CERTIFICAZIONI: SOA-ISO9001, ISO14001-BSOHSAS18001

Opificio della Luce è la rete innovativa d'impreses che integra in modo multidisciplinare le competenze e le risorse tecniche necessarie a progettare, realizzare, programmare e controllare sistemi d'illuminazione di alta qualità nel mondo dell'arte e nel sistema museale. All'Opificio della Luce studiamo e applichiamo le innovazioni rese possibili dall'elettronica, dalla chimica e dalla luce a stato solido (SSL) e anche dalle opportunità offerte dalle più avanzate tecniche di gestione della luce digitale.

Opificio della Luce è a new business network with all the necessary skills and technical resources for designing, building, programming and controlling high-quality lighting systems in the art world and museum systems. At Opificio della Luce we study and apply the innovations made possible by electronics, chemistry and SSL (solid-state lighting) as well as the opportunities offered by the most advanced techniques of digital light management.

ANNO DI FONDAZIONE: 1954
CERTIFICAZIONI: SOA-ISO9001, ISO14001-BSOHSAS18001

Fondata nel 1954 abbiamo sviluppato un forte carattere imprenditoriale, siamo presenti nel settore restauro con importanti referenze quali, Museo del Duomo, Palazzo Bagatti Valsecchi, Banca d'Italia, Complesso Broletto di Novara, Biblioteca Apostolica Vaticana e Fondazione Don Carlo Gnocchi. Durante i 60 anni della nostra storia non sono mai mancate determinazioni e competenza e per questo oggi siamo tra le prime aziende del panorama edilizio nazionale - le con un fatturato che supera i 100 milioni.

Founded in 1954 we have developed a strong entrepreneurial personality, we're operative in the restoration industry with important references such as, the Duomo Museum, Palazzo Bagatti Valsecchi, Bank of Italy, Broletto Complex in Novara, Vatican Apostolic Library and Don Carlo Gnocchi Foundation. During our 60 years long story we never lacked determination and competence and for this reason we are now among the most important companies in the Italian construction industry, with a turnover that exceeds 100 millions.

Restauro architettonico. Risanaamento umidità di risalita. Escavature con varie tipologie di inerti. Restauro artistico, puliture delicate e di precisione, consolidamento e protezione legno, marmi, granito "ossola" e pietre, cotto e ferro. Decorazioni e stucchi.

Architectural restoration. Ascending humidity improvement. Ecological sandblasting. Artistic restoration, soft and precision cleaning, consolidation and protection on wood, marbles, "ossola" granites and stones, cotto and iron. Decorations and stucchi.

ANNO DI FONDAZIONE: 1875
CERTIFICAZIONI: ISO 9001:2008, Certificazione SOA: OG02-classe III-BIS, OS02A-classe V

La Piacenti spa svolge attività di progettazione, conservazione e restauro di beni di interesse storico-artistico e monumentale, disponendo di personale altamente specializzato nel trattamento di manufatti ceramici, metallici e lapidei. All'interno dell'impresa, che si avvale di attrezzature tecnologiche e di ampi laboratori, ogni competenza settoriale lavora in sinergia con le altre e viene coordinata dall'ufficio tecnico e diagnostico. L'azienda possiede i requisiti professionali, economici ed organizzativi che le permettono, autonomamente, l'esecuzione di grandi lavori pubblici e privati. Opera in Italia, Cina, Turchia, Moldavia e Russia.

The Piacenti S.p.a. carries out planning and execution activity in the field of cultural heritage restoration and conservation by his high specialized and qualified employees on wooden and polychrome objects, paintings on wood and canvas, stuccoes, wall paintings, artifacts, ceramic metallic and stone materials. Inside the headquarters, geared by technical equipment and wide workshops, every sectorial competence collaborates with the others, coordinated by technical and diagnostic offices. The firm has all professional, economic and organizational requirements which allow, autonomously, to carry out big public and private contracts for restoration and conservation works. It works in Italy, China, Turkey, Moldova, Russia.

MONTINA

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MONTINA DI RINO MONTINA RESTAURO E CONSERVAZIONE

Via Monte Cimone 11/11 - 33100 Udine
Tel. +39 3282152292
rinomontina@libero.it

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ANNO DI FONDAZIONE: 2000
Recupero e trattamento conservativo di pavimenti in cotto, di superfici lapidee e lignee. Eco-sabbature.
Repairs and conservative treatments on brick pavements, stone and wood surfaces. Ecological sandblasting.

NEWTON & WATT

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NEWTON & WATT SRL

Zona Ind. Melpignano - 73020 Lecce
taran@tinomn.com
www.restaurostatico.com

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L'azienda è suddivisa in più reparti e offre assistenza diretta con i propri tecnici qualificati. Reparto diagnostica esegue con il proprio laboratorio mobile analisi di carattere non distruttivo al fine di caratterizzare l'elemento architettonico e collaudare l'intervento di restauro. Reparto analisi computazionale, svolge attività di modellazione e di analisi delle strutture, esegue proposte di intervento di restauro statico, al fine di valutare gli indicatori di rischio sismico con valutazione su possibili cinematismi e scenari di collasso. Reparto cantiere e officina esegue installazione di manufatti in acciaio o applicazione di FRM come da elaborati tecnici.
The company is divided by many departments and offers direct assistance through his qualified technicians. The diagnosis department performs not destructive type analysis with its mobile laboratory to distinguish the architectionic element in order to check the restoration. The computational analysis department develops modelling and structure's analysis activities, performs static restoration proposals in order to check the seismic risk indicators and the possible kinematic and collapse scenarios. The building site produces artifacts steels or FRM application as the technical drawings provide for.



NICOLA RESTAURI S.r.l.

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NICOLA RESTAURI SRL

Via S. Giulia 65 - 10124 Torino
Tel. +39 0141 909125 - Fax +39 0141 909170
info@nicolarestauri.com
www.nicolarestauri.com

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CERTIFICAZIONI: ISO 9001- SOA
Nicola Restauri Srl è una realtà d'eccellenza nel campo del restauro, riconosciuta a livello internazionale, al servizio di Soprintendenze, Enti, Musei, Università e collezionisti. Oltre sessant'anni di esperienza nel recupero, conservazione e restauro di opere antiche e moderne, su tela, legno, carta, pergamena, pietra, reperti archeologici, affreschi e stucchi in chiese e palazzi. Nel laboratorio operativo di Aramengo (AT) di oltre 3000 mq si eseguono anche indagini strutturali non invasive.
Nicola Restauri Srl is an international recognized company in the field of restoration, serving Public, Private and Ecclesiastical organizations, Museums, Universities and collectors. Over sixty years of experience in the recovery, preservation and restoration of ancient and modern works on canvas, wood, paper, stone, archaeological finds, frescoes and stucco in churches and palaces. In the laboratory of Aramengo (AT) of more than 3000sqm are also carried non-invasive imaging techniques.



N.O.V.A.R.I.A. R.E.S.T.A.U.R.I. S.R.L.
Restauro Opere d'Arte

N.O.V.A.R.I.A. R.E.S.T.A.U.R.I. SRL

Via Marco Polo 19 - 28100 Novara
Tel. +39 0321 691414 - Fax +39 0321 688698
novaria_r@starnova.it

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ANNO DI FONDAZIONE: 1972
La N.O.V.A.R.I.A. R.E.S.T.A.U.R.I. Srl è una società specializzata nel restauro, recupero e conservazione di Beni Culturali, quali opere d'arte mobili e beni immobili sottoposti a tutela. Dal 1972 si occupa di progettazione, indagini diagnostiche, ricerche, pronto intervento, messa in sicurezza, recupero e restauro di affreschi e dipinti su muro, stucchi, dipinti su tela e tavola, elementi lapidei e monumenti all'aperto, bronzi, tessuti, sculture lignee dorate e policrome. Al necessario operiamo smontaggio e trasferimento di Monumenti. Trasferimenti di gipsoteche e di pinacoteche e assistenza nei restauri dei loro contenitori (musei). Servizi di consulenza e perizie nell'ambito dei Beni Culturali.
La N.O.V.A.R.I.A. R.E.S.T.A.U.R.I. Srl mette a disposizione esperienza, competenza e serietà in ogni delicata fase del restauro, garantendo un alto standard qualitativo e un continuo monitoraggio dei lavori eseguiti. È in grado di intervenire, autogestendosi, in situazioni di emergenza conservativa, anche a seguito di calamità.

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MAPEI SPA

Via Carlo Cattaneo 22 - 20158 Milano
Tel. +39 02 37673.1 - Fax +39 02 37673214
mapel@mapel.it - www.mapel.com

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CERTIFICAZIONI: ISO 9001, ISO 14001, OHSAS 18001
ANNO DI FONDAZIONE: 1937
Il Gruppo Mapei, composto da 68 aziende consociate con 59 stabilimenti operanti nei cinque continenti, è oggi il maggior produttore mondiale di adesivi e prodotti complementari per la posa di pavimenti e rivestimenti di ogni tipo e specialista in altri prodotti chimici come impermeabilizzanti, malte speciali e additivi per calcestruzzo, prodotti per il recupero degli edifici storici, finiture murali speciali.
Mapei Group, 68 subsidiaries with 59 plants in the five continents, is today the world leader in the production of adhesives and complementary products for the installation of all types of floor and wall coverings. The company is also specialized in other chemical products for restoration of ancient buildings and special wall decorative and protective coating.

CERTIFICAZIONI: ISO 9001, ISO 14001, OHSAS 18001
ANNO DI FONDAZIONE: 1937
Il Gruppo Mapei, composto da 68 aziende consociate con 59 stabilimenti operanti nei cinque continenti, è oggi il maggior produttore mondiale di adesivi e prodotti complementari per la posa di pavimenti e rivestimenti di ogni tipo e specialista in altri prodotti chimici come impermeabilizzanti, malte speciali e additivi per calcestruzzo, prodotti per il recupero degli edifici storici, finiture murali speciali.
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MARMIROLI SRL

Via Strada Vecchia 88/1 - 42011 Bagnolo in Piano (RE)
Tel. +39 0522 954342 - Fax +39 0522 954102
info@marmiroli srl.com - www.marmiroli srl.com

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CERTIFICAZIONI: ISO 9001:2008
La MARMIROLI S.r.l., svolge da 40 anni restauro conservativo e strutturale di beni artistici: Dipinti murali; Paramenti in marmo, stucco e laterizio; Intonaci antichi; Manufatti lignei dipinti e dorati e certificata SOA cat. OS2-A class, IV BIS e Cat. OS2-A class, III BIS e UNI EN ISO 9001:2008 Collabora con uno staff altamente specializzato, con strutture d'eccellenza nel settore della diagnostica, con uno studio di ingegneria con particolare esperienza nel campo del restauro strutturale.
The MARMIROLI Srl, performs for 40 years and structural conservative restoration of artistic goods: Painted murals; Paraments marble, putty and brick; Old plaster; Painted and gilded wooden artefacts. It is certified SOA category OS2-A class, IV and category OS2 class, III and UNI EN ISO 9001:2008 Collaborates with a highly specialized staff, with structures of excellence in the areas of diagnostics, with an engineering study with particular experience in the field of structural restoration.

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MELLONCELLI SRL

Via Arginero 174 - 46028 Semide (MN)
Tel. +39 0386 960004 - Fax +39 0386 960335
info@melloncelli.it - www.melloncelli.it

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Melloncelli srl is a company founded 170 years ago. The core business was the custom design advanced solutions for the precision mechanics applied to clocks bell and automation of bells. Today along the evolution of the electronic and electrotechnical industry, Melloncelli srl presents its achievements in the field of amplification, sound playback and video surveillance. Thanks to the development of lighting technology arises with their own designs and installations as an architect in the control of light, energy saving through its LED lighting and the environment. Just to defend the environment and in particular the artistic characterized mainly by the church to which Melloncelli caters for years, has introduced to the market its technology for the ultimate resolution of the problem due to moisture lifts.

CERTIFICAZIONI: UNI EN ISO 9001:2008



MINERVA RESTAURI SRL

Via Medina 40 - 80133 Napoli
Tel. +39 081 5422036 - Fax +39 081 5422036
ufficiogarecontratti@minervarestauri.it

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Da circa 30 anni MINERVA RESTAURI si occupa di Restauro Architettonico e archeologico dei Beni Culturali di grande valore storico-artistico. Da Palazzo Reale di Napoli fino al restauro e al recupero delle insulae di Pompei; MINERVA RESTAURI compie negli anni un arricchimento sul recupero e sul restauro tale da costituire un adeguato profilo per Enti Pubblici e strutture private. Oggi MINERVA RESTAURI rappresenta una realtà aziendale rinnovata, dove una nuova gestione, un passato illustre e giovani professionalità si confrontano con le problematiche del restauro e della conservazione del patrimonio storico-artistico.
For about 30 years MINERVA RESTAURI has handled Architectural and Archaeological Restoration of historical, artistic and cultural Heritage. From the Royal Palace of Naples up to the Beni Culturali di grande valore storico-artistico, MINERVA RESTAURI has developed over the years an enrichment on the recovery and restoration capable to provide an appropriate profile for public bodies and private companies.

E

CATEGORIE | CATEGORIES

1 ANALISI E PROGETTO | TESTING & DESIGN 2 MATERIALI | MATERIALS 3 INTERVENTI | TYPE OF WORKS 4 APPARECCHIATURE E TECNOLOGIE | EQUIPMENT & TECHNOLOGIES 5 SERVIZI | SERVICES

3



Corso Sempione 215/B - 20025 Legnano (MI)
Tel +39 0331 454845 - Fax +39 0331 1986803
info@leonardosolutions.it
www.leonardosolutions.it

LEONARDO SOLUTIONS SRL



ANNO DI FONDAZIONE: 2005

tecnologia elettronica attiva, secondo soluzioni e detentrici della tecnologia utilizzata a marchio Domodry®, protetta da brevetto (Brev. UIBM n° 0003191107, Dep. EPD n° 916742; US Patent Application n° 13/209,053). A differenza di altri sistemi, che tentano di contrastare la risalita capillare "dovendo" "passare" attraverso la capillarità, agendo direttamente sulle cause che ne sono all'origine. Anche per questo motivo, l'efficacia della tecnologia Domodry® non è minimamente eguagliabile da nessuno dei sistemi tradizionali in uso, ed oggi disponibili sul mercato. L'azienda, operante sia in campo edile che nel Beni Culturali, garantisce e applica l'integrità al problema tramite un'attività inassumibile in re fast: diagnosticata preventivamente e applicazione del sistema Domodry®, monitoraggio del processo di asciugatura del muro fino a completamento dello stesso. Il controllo della fase di demineralizzazione viene effettuato mediante mappatura termografica e/o misurazioni ponderali, oltre ad eventuali attività di monitoraggio climatico. Il stesso servizio è/o fornitura di sistemi per il monitoraggio climatico in musei ed ambienti conservativi e forniti anche per applicazioni diverse, come il controllo climatico in musei ed ambienti conservativi in genere. Specialisti in diagnosi, pianificazione e applicazione di tecnologie per la preservazione e building restoration. The company has developed the innovative "Domodry® wall moisture control and moisture removal system", based on the "Electrophysics active dehumidification principle"; it is a non-invasive, reversible and biocompatible new generation technology, effective to any kind of building affected with rising damp.



Via della Bastia 13
40033 Casalecchio di Reno (BO)
Tel +39 051 334648 - Fax +39 051 5880360
info@studioleonardo.it - www.studioleonardo.it

LEONARDO SRL
ANALISI E RESTAURO



ANNO DI FONDAZIONE: 2000

CERTIFICAZIONE: Os2 Classifica III, Os2 Classifica I,

Leonardo S.r.l. interviene sui beni culturali dalla diagnosi al restauro. Possiede la certificazione in SOA categoria OS2 III e OS2 I, oltre al Sistema di Certificazione della Qualità (UNI EN ISO 9001:2008). Opera sia nella fase progettuale, effettuando analisi dei materiali e dello stato di conservazione, che nella fase esecutiva, realizzando restauri di beni mobili e immobili, documentazione interventi, monitoraggio operazioni effettuate.

Leonardo S.r.l. operates on cultural heritage from diagnostics to restoration. Leonardo is certified in SOA for categories OS2 III and OS2 I and in Quality Certification System (UNI EN ISO 9001:2008). It both works on planning, conducting analysis on materials and on state of conservation, and on practice, restoring paintings, frescoes, statues and historical buildings, documenting operations, monitoring restorations.

9



Via Borgo Valsugana 11 - 59100 Prato (PO)
Tel. +39 0574 36953 - Fax +39 0574 404677
info@legnodoc.com - www.legnodoc.com

LEGENDOC SRL

**ANNO DI FONDAZIONE: 1997**

CERTIFICAZIONI: UNI EN ISO 9001 : 2008

Formulari di ispezione per fini diagnostici su strutture lignee in opere antiche e recenti; servizi di classificazione per legname a uso strutturale; assistenza e consulenza per interventi specialistici su strutture lignee; formazione e divulgazione tecnico-scientifica nel settore dell'impiego strutturale del legno.

9

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Via del Rame, 73 - 06134 Ponte Felcino (PG)
Tel. +39 075 5918071 - Fax +39 075 5913378
info@kimia.it - www.kimia.it

KIMIA SPA



3

ANNO DI FONDAZIONE: 1979
CERTIFICAZIONI: UNI EN ISO 9001: 2008

leader riconosciuto nella produzione e commercializzazione di materiali edili. Siamo stati i primi in Italia (iniziati 80 anni fa) a creare una tecnologia dei materiali composti per il consolidamento strutturale (inizialmente in carbonio e vetro, ora anche in acciaio e inorganiche), applicabili con un'ispirata libertà di durabilità ed eccellenza, ma non solo.... Klimia è anche preconfigurate ad alta durabilità, calcoli idraulicolenenti, soluzioni impermeabilizzazioni, pavimentazioni, trattamenti protettivi in idro-pulizia, isolamento e deumidificazione: una gamma di soluzioni per il restauro e recupero completa, dalle elevatissime prestazioni e sempre conforme alle più recenti normative.

Great experience leading company operating in the production and trading of hi-tech materials for building recovery and restoration like : high durability prepackaged mortars, natural hydraulic limes, steel composite and FRP systems for the reinforcement of existing structures, solutions for waterproofing and floorings, protective & cleaning treatments, insulation and dehumidifications, complying to the latest building regulations.

E



IMPRESA GARIBALDI SRL

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3
Piazza Mercantile 30 - 70122 Bari
Tel. +39 080 5237428 - Fax +39 080 5234756
info@impresagaribaldi.it - www.impresagaribaldi.it

A



IMPRESA VIOLI SRL

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Via Luigi Barzini 36 - 00157 Roma
Tel. +39 06 4734786 - Fax +39 06 4734786
impresavioli@impresavioli.it - www.impresavioli.it

E



ITALIANA COSTRUZIONI SPA

3

Via Antonio Stoppani 15 - 00197 Roma
Tel. +39 02 910991 - Fax +39 02 6575161
info@italianacostruzionispa.it
www.italianacostruzionispa.it

E



KAIROS RESTAURI SNC DI LUCA ZAPPETTINI & C.

3

Via Taccoli, 18 - 20161 Milano
Tel. +39 02 36682135 - Fax +39 02 66228032
info@kairosrestauri.it

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CATEGORIE | CATEGORIES

- 1 ANALISI E PROGETTO | TESTING & DESIGN
- 2 MATERIALI | MATERIALS
- 3 INTERVENTI | TYPE OF WORKS
- 4 APPARECCHIATURE E TECNOLOGIE | EQUIPMENT & TECHNOLOGIES
- 5 SERVIZI | SERVICES

CERTIFICAZIONI: UNI EN ISO 9001:2008
La società è un'impresa edile con sede in Bari (la più antica della città), che opera prevalentemente per conto terzi nel campo del restauro, delle manutenzioni e delle nuove costruzioni in un ambito nazionale. Il restauro riguarda beni di interesse monumentale sia architettonico che di restauro artistico. La committenza del settore di restauro è quasi esclusivamente pubblica in particolare Ministero dei Beni Culturali.

The Garibaldi, is a construction company registered in Bari (the oldest one of the town), which operates mainly in the restoration field on behalf of third parties, maintenance and new buildings constructions all over the national sphere. The restoration, regards the architectural and artistic operating to the monumental assets of interest. Our restoration customers, belongs almost exclusively to the public sphere, especially the Ministry of the Cultural Heritage.

CERTIFICAZIONI: ENI EN ISO 9001:2008 ENI EN ISO 14001:2004
L'impresa Viola è da anni fortemente attiva nel settore del restauro conservativo. Il nostro lavoro è eseguito in collaborazione e sotto la supervisione delle Sovrintendenze. La nostra esperienza, la struttura organizzativa e le nostre attrezzature ci consentono di fornire alle imprese pubbliche e private un servizio completo dalla consulenza tecnica all'esecuzione di lavori su tutto il territorio nazionale. Eseguiamo molteplici tipologie di lavoro dalla realizzazione di grandi superfici monumentali e civili, quali facciate, ponti, pavimenti, soffitti fino ad arrivare a quelli più complessi come il restauro di fregi, statue fontane, colonnati, chiese, centri storici, castelli e monasteri. Disponiamo di attrezzature che ci consentono di risolvere qualsiasi problematica grazie all'utilizzo delle più innovative tecnologie per la pulitura, la conservazione ed il risanamento ecologico.

The Company Viola has long been very active in the field of conservative restoration. Our work is performed in collaboration and under the supervision of the Superintendence. Our experience, the organizational structure and our equipment allows us to provide the public and private companies a complete service from technical advice to the execution of works on the whole national territory. We realized many types of work from the construction of large areas such as civil and monumental surfaces like facades, bridges, floors, ceilings, until get to the more complex ones such as the restoration of friezes, statues, fountains, squares, colonnades, churches, castles and monasteries. We have equipment that enable us to solve any problem through the use of innovative technologies for cleaning, conservation and ecological restoration.

ANNO DI FONDAZIONE: 1975

CERTIFICAZIONI: UNI EN ISO 9001:2008 / UNI EN ISO 14001:2004 / BSOSHAS 18001:2007

Fondata nel 1975 da Claudio Navarra e guidata oggi dai figli Attilio e Luca, ha dato continuità ad una "vita centenaria" tradizione imprenditoriale della famiglia Navarra nel settore delle costruzioni. L'attività edilizia della Famiglia ha avuto inizio nel 1880 con la realizzazione di importanti opere pubbliche. La sede principale è a Roma dove vengono accentrati i servizi tecnici-amministrativi ed una sede operativa a Milano dove vengono coordinate le attività produttive localizzate nel Nord Italia. Nel corso degli anni, alla Italiana Costruzioni sono state affidate Aziende, sempre recenti capo alla Famiglia Navarra, specializzate in specifici settori, in particolare, nel corso dell'ultimo quinquennio, la costante crescita espressa da un notevole incremento del proprio fatturato. L'esperienza professionale acquisita anche attraverso considerevoli investimenti in termini di risorse umane hanno consentito all'azienda il raggiungimento di alti standards qualitativi.

Founded in 1975 by Claudio Navarra and currently led by his sons, Attilio and Luca, has carried on the centuries-old tradition of the Navarra family in the construction industry, dating from 1880. Headquartered in Rome, where the company's technical and administrative departments are located, while its Milan office coordinates construction activities in northern Italy. Operations fields: private clients: construction hotels, shopping centres, public works; residential, industrial, university construction, projects for the military and branches of law enforcement; the restoration of churches, buildings of noteworthy historical and artistic interest subject, infrastructure, roadways, urban development; residential for the real-estate sector. Over the last five years, the steady growth expressed by a significant increase in its revenue, the professional experience gained through considerable investment in terms of human resources have enabled the company to achieve high quality standards.

Kairos Restauri S.n.c. opera nella progettazione e realizzazione dell'intervento di conservazione e restauro di beni artistici e culturali sottoposti a tutela: dipinti murali, affreschi, materiali lapidei e fittili, intonaci, stucchi, manufatti metallici, dipinti su tela. Eseguiamo campagne diagnostiche con la collaborazione di consulenti scientifici avvalendoci di centri universitari (CNR) e di laboratori privati. Competenza ed esperienza permettono di affrontare a pieno ogni aspetto dell'opera, l'individuazione di tecniche e materiali, all'intervento stesso. Alti standard qualitativi nel rispetto dei tempi di esecuzione hanno caratterizzato le relazioni con enti pubblici e privati.

Kairos Restauri S.n.c. designs and executes conservation and restoration works of listed artistic and cultural heritage, including murals, frescoes, stone and clay artefacts, plasters, stuccoes, metal objects, paintings on canvas. We carry out diagnostics with the contribution of scientific advisers, university centres (CNR) and private laboratories. Our skills and experience help us successfully deal with all steps of the process, including analysing the artwork, identifying the most convenient techniques and materials, executing the work. Commitment to high quality standards and compliance with delivery times characterize our relations with both private and public customers.

A



graphite

ANNO DI FONDAZIONE: 1946
CERTIFICAZIONI: UNI EN ISO 9001:2008

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GRAPHITE SRL

Via R. Bracco 45 - 80133 Napoli
Tel. +39 081 5521385 - Fax +39 081 2307410
contact@graphite.ae - www.graphite.ae

E



IBIX SRL

Via la Viola 4 - 48022 S. Maria in Fabriago (RA)
Tel. +39 0545 994589 - Fax +39 0545 994567
info@ibix.it - www.ibix.it

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**ICVBC - AREA DI RICERCA CNR
DI FIRENZE**

Via Madonna del Piano, 10
50019 Sesto Fiorentino (FI)
Tel. +39 055 5225484 - Fax +39 055 5225483
www.icvbc.cnr.it

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**IFAC - ISTITUTO DI FISICA APPLICATA
"NELLO CARRARA"**

Via Madonna del Piano, 10
50019 Sesto Fiorentino (FI)
www.ifac.cnr.it

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Graphite, from 1946, means expertise, experience and deep knowledge of materials and construction techniques. The company, headquartered in the historic center of Naples, founded by Giuseppe Archivolti and currently led by his son Raffaele, is specialized in architectural restoration and restoration of paintings, stone sculptures, wood and ceramic material. In every work the use of not invasive and sustainable techniques has great relevance, in respect of the materials, the environment and the worker.

Graphite S.r.l., dal 1946, è sinonimo di professionalità, esperienza e profonda conoscenza di materiali e tecniche costruttive. L'azienda, con sede nel centro storico di Napoli, fondata dall'ing. Giuseppe Archivolti, è attualmente guidata dal figlio Raffaele. Graphite è specializzata in restauro di beni architettonici, di opere pittoriche realizzate su diversi supporti e di materiali in pietra, legno e materiale ceramico. In ogni intervento grande attenzione è sempre rivolta all'utilizzo di tecniche poco invasive e ad alto grado di sostenibilità, nel rispetto della materia prima, dell'ambiente e del lavoratore.

IBIX® è leader tecnologico per la pulitura a bassa pressione mediante micro-aero-abrasione. È specializzata nella realizzazione di sistemi di pulitura selettiva a bassa pressione con tecnologia a vortice elicoidale HELIX® a secco e a umido. La tecnologia IBIX®, sviluppata in collaborazione con specialisti del restauro, utilizza specifiche inerti selezionati per le puliture artistiche. IBIX Mobile Lab® ST01 è un completo e versatile laboratorio portatile che consente di eseguire indagini diagnostiche sui materiali storici in maniera semplice ed intuitiva, rendendo accessibili a tutti coloro che operano nel campo della conservazione dei Beni Culturali le tecniche di base per la caratterizzazione dei materiali lapidei naturali e artificiali e dei relativi fenomeni di degrado. Le metodologie analitiche impiegate sono conformi alla normativa italiana (UNI-Beni Culturali) ed europea (EN—Conservation of Cultural Property).

IBIX® is a leader in developing technology and materials for low-pressure micro-aero-abrasive cleaning and designs and manufactures HELIX® low pressure dry or wet vortex cleaning systems. IBIX Mobile Lab® ST01 is a comprehensive & versatile portable laboratory to analyse and diagnose historic building materials in an easy and clear manner. The methods of analysis used comply with both Italian and European regulations by UNI-Beni Culturali (Cultural Heritage) and EN—Conservation of Cultural Property respectively.

L'Istituto per la Conservazione e la Valorizzazione dei Beni Culturali (ICVBC) del CNR, nasce nel 2001 dall'accorpamento del Centro di Studio del CNR sulle "Cause di Deterioramento e Metodi di Conservazione delle Opere d'Arte", istituiti nel 1970. L'Istituto ha sede a Firenze con Sezioni a Roma e Milano. Compiti istituzionali dell'ICVBC sono: attività di ricerca, coordinamento, consulenza e formazione. Caratteristica essenziale dell'Istituto è la multidisciplinarietà con cui vengono affrontate le problematiche, resa possibile dalla molteplicità delle competenze in esso presenti e dallo sviluppo di una rete consolidata di collaborazioni nazionali e internazionali con altri Istituti di Ricerca, con Università e con Enti pubblici e privati preposti alla tutela ed alla conservazione del Beni Culturali.

The Institute for the Conservation and Valorization of Cultural Heritage (ICVBC) of the CNR, was founded in 2001 and is located in Florence with units in Rome and Milan. The institutional tasks of ICVBC include research, coordination, consultancy and training. One of the essential assets of the ICVBC is its multi-disciplinary character, promoting an interdisciplinary approach to research, guaranteeing not only by the presence of different professionals, but also through the development of an extensive national and international network of cooperation with research Institutes, universities and public or private bodies involved in the protection and conservation of Cultural Heritage.

L'Istituto di Fisica Applicata "Nello Carrara" (IFAC) è parte del Consiglio Nazionale delle Ricerche (CNR) il principale ente pubblico che persegue in Italia obiettivi di ricerca ed innovazione. IFAC conduce attività di ricerca, sviluppo sperimentale e trasferimento tecnologico in molte aree della Fisica Applicata e dell'ICT, come: SPAZIO, AEROSPAZIO e OSSERVAZIONE della TERRA; SALUTE, NANOMEDICINA e SICUREZZA; MONITORAGGIO AMBIENTALE e della QUALITÀ dei CIBI; BENI CULTURALI.

The "Nello Carrara" Institute of Applied Physics (IFAC) is part of the National Research Council (CNR), which is the main public organisation pursuing research and innovation in Italy. IFAC carries out research activities, experimental development and technological transfer in many areas of Applied Physics and ICT, as: SPACE, AEROSPACE and EARTH OBSERVATION; HEALTH, NANOMEDICINE and SAFETY; ENVIRONMENT and FOOD QUALITY MONITORING; CULTURAL HERITAGE.

E



composite engineering

FIBRE NET SRL

1

Via Jacopo Stellini 3 - 33050 Pavia di Udine (UD)
Tel. +39 0432 600918 - Fax +39 0432 526199
info@fibrenet.it - www.fibrebuid.it

2

ANNO DI FONDAZIONE: 2001
CERTIFICAZIONI: ISO 9001 : 2008

Progettazione/costruzione di sistemi di rinforzo in F.R.P. (Fiber Reinforced Polymer) ad elevata resistenza meccanica e chimica, basso peso e spessore, per recupero e consolidamento di strutture.

Design and manufacturing of low weight and thickness FRP (Fiber Reinforced Polymer) systems with high mechanical and chemical resistance, suitable for structural reinforcement of existing buildings.

A



GDL CONSERVAZIONE E RESTAURO SRL

ANNO DI FONDAZIONE: 2007
CERTIFICAZIONI: UNI EN ISO 9001 : 2008
SOA OG2 III

Restauro e Conservazione di edifici monumentali ed ecclesiastici.

Restoration and conservation of monumental and ecclesiastical buildings

1

Piazza Vittorio Emanuele II, 4 - 27041 Barbianello (PV)
Tel +39 0385 287010 - Fax +39 0385 287828
info@gdlrestaurio.com
www.gdlrestaurio.com

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GDL - CONSERVAZIONE E RESTAURO SRL

A



ANNO DI FONDAZIONE: 1994
CERTIFICAZIONI: SOA - cat OS 20 classe II

Laser Scanning 3D (Architettura, Infrastrutture, Industriale). Archeometria. Stereofotogrammetria Fotogrammetria Ortofoto. Topografia e GPS. Batimetria. Rilievi di interni. Elaborazioni grafiche e fotografiche.

3D Laser Scanning (Architettura, Archeology, Infrastructures, Industrial). Archaeometry. Stereophotogrammetry Photogrammetry Orthophoto. Topography and GPS. Bathymetry. Traditional Surveys. Graphic and Photographic information processing.

1

GEOPRA SRL

Via Indipendenza 106 - 46028 Seride (MN)
Tel. +39 0386 62628 - Fax +39 0386 960248
info@geogra.it - www.geogra.it

5

E



GEOMAR.IT SNC
DI RASCHIERI A, MELLANO M. E BOETTI M.

Via Matteotti 5 - 12084 Mondovì (CN)
Tel. +39 0174 45920 - Fax +39 0174 45920
amministr@geomar.it - www.geomar.it

1

ANNO DI FONDAZIONE: 2001

Rilievi architettonici, laser scanner, elaborati grafici e fotografici. La società geomar.it nasce nel 2001, dall'iniziativa di tre professionisti da anni impegnati nel settore dell'applicazione di nuove tecnologie e metodologie informatiche nel campo dell'architettura e della topografia. La società eredita l'esperienza acquisita dai suoi ideatori nel corso dell'attività professionale. Architetural surveys, laser scanners, graphic printouts and photographs. Geomar.it was established in 2001 by three experienced professionals in the field of the new technologies and IT methods applied to architecture and land survey. The company has inherited the skills acquired by its founders during their professional career.

DELETTERA EDITORE

recupero e conservazione
la rivista italiana per la riqualificazione del patrimonio edilizio, architettonico, urbanistico

DE LETTERA EDITORE SAS

Via A. Tadini 25 - 20124 Milano
Tel. +39 02 29528788
Fax +39 02 29517404
delettera@delettera.it
www.delettera.it

ANNO DI FONDAZIONE: 1990

Casa Editrice specializzata nel settore dell'architettura, l'ingegneria edile, i beni culturali: "Recupero e Conservazione" [la rivista italiana leader di settore], "City Project" [la prima free press di architettura in Europa], "City Energia" [la prima free press sul risparmio energetico e le energie rinnovabili], "L'Edilizia" [la rivista italiana per l'ingegneria strutturale]. Publishing house specializing in architecture, building engineering and cultural assets publications: "Recupero e Conservazione" (Italy's leading magazine in the sector), "City Project" (Europe's first free press for architecture), "City Energy" (the first free press on energy saving and renewable energy), "L'Edilizia" (Italy's structural engineering magazine).

Diamantech



DIAMANTECH SRL

Via A. Gramsci 10 - 25080 Nuvolento (BS)
Tel. +39 030 6915222 - Fax +39 030 6915222
info@diamantech.it - www.diamantech.it

ANNO DI FONDAZIONE: 1998

CERTIFICAZIONI: Procedura in corso per ISO e O62

Consolidamento strutturale edifici con sistemi innovativi e tecnologie all'avanguardia. Perforazioni lunghe speciali. Installazione di ancoraggi e incastri per rinforzo di murature. Miglioramento e adeguamento in funzione antisismica di edifici. Posa FRP. Demolizioni con travi e cunei di demolizione. Perforazioni speciali e taglio cemento armato. Risanamento delle murature umide con barriere e chimica per l'edilizia. Micro sabbatura ecologica per pulizia di marmi, graniti, murature lapidee, murature faccia a vista, legno, ferro. Installatore certificato Bossong per sistemi di ancoraggio inietti in murature storiche. Structural strengthening buildings with innovative systems and well-advanced technology. Long special drilling, installation of anchors and heavy duty anchors for masonry reinforcement. Seismic retrofitting of buildings and structural improvement and adaptation. Installation of FRP. Controlled demolitions with diamonds tools: special drilling and reinforced concrete cutting. Renovation of damp walls with barriers and construction chemicals. Micro blasting ecological cleaning of marble, granite, stone, masonry face brick, wood, iron. Bossong certified installer for anchoring systems injected into historic masonry.



EDILTECNICA GLOBAL SERVICE

Via S. Babini 80 - 48124 Gubbio (RA)
Tel. +39 0544 552111 - Fax +39 0544 552075
info@ediltecnica.com - www.ediltecnica.com

ANNO DI FONDAZIONE: 1987

CERTIFICAZIONI: in corso - Qualità ISO 9001

La Conservazione e la Valorizzazione del Patrimonio Edilizio, in particolare se di valore storico, mediant la Manutenzione e il Restauro e la Creazione di Valore in una prospettiva di Sostenibilità Ambientale ed Energetica. La manutenzione di un edificio - mantenerne efficienza, integrità e funzionalità - il recupero e il restauro, sono specializzazioni che non lasciano spazio all'improvvisazione e alla frammentazione ma richiedono ricerca, competenza ed esperienza per conservare il patrimonio storico e architettonico del nostro territorio nel rispetto dell'ambiente e di un'elevata qualità della vita. Il consorzio Ediltecnica nasce nel 1987 con una struttura che punta sull'integrazione verticale di tutte le necessarie professionalità e competenze proprie del settore edile creando sinergie tra imprese specializzate nei diversi e complementari settori di intervento in un processo che va dalla progettazione alla consegna, chiavi in mano. Il cliente ottiene così tutti i benefici della specializzazione e al tempo stesso i vantaggi di collaborare con un unico referente dagli elevati parametri qualitativi in un'evidente economia di processo che segna lo stile di tutta l'azienda. Edil Tecnica adempie alle prescrizioni e segue continui piani di miglioramento in materia di qualità e sicurezza.



EL.EN. ELECTRONIC ENGINEERING SPA

Via Balduense 17 - 50041 Calenzano (FI)
Tel. +39 055 8826807 - Fax +39 055 8832884
conservazione@elen.it - www.elengroup.com

ANNO DI FONDAZIONE: 1981

CERTIFICAZIONI: ISO 9001

Il Gruppo EL.En., fondato nel 1981, è stato il primo in Italia ad aver sviluppato, nella prima metà degli anni '90, sistemi laser per le applicazioni nella conservazione dei Beni Culturali. Dal 2005 l'attività di EL.En. si è integrata con l'esperienza maturata da Quanta System S.p.A., azienda del gruppo tra le prime e più importanti nella realizzazione di sistemi laser per i Beni Culturali, tecnologicamente d'avanguardia e costantemente validati dal mondo della conservazione. La soc. EL.En. ha messo a punto anche alcuni dispositivi e sistemi optoelettronici per la diagnostica e il monitoraggio. Sistemi di diagnostica laser LIBS (Laser induced Breakdown Spectroscopy) per indagini composizionali su metalli e autenticazione di opere d'arte e FLIDAR (Fluorescence Light Detection And Ranging) per il monitoraggio in remoto di monumenti e diagnostica composizionale della carta. L'Actis, società del Gruppo EL.En., ha messo a punto e detiene il brevetto della Black Box per l'arte, dispositivo per il monitoraggio del trasporto delle opere d'arte. I campi di applicazione della strumentazione laser sono la pittura di manufatti artistici, monumenti e edifici storici, potendo operare su supporti lapidei, stucchi, superfici affrescate, metalli di cui in particolare bronzo e bronzo dorato, argenti e oreficerie, manufatti in legno anche dipinti. I sistemi laser del Gruppo EL.En. sono presenti in numerosi laboratori europei e nel mondo e sono stati utilizzati o vengono adesso impiegati nei più importanti cantieri di restauro. La Società, EL.En. ha sponsorizzato i restauri del bassorilievo del SS. Sepolcro a Gerusalemme, David del Verrocchio e David di Donatello al Museo Nazionale del Bargello.

A SOCIO AGGREGATO | STANDARD MEMBER

E SOCIO EFFETTIVO | FULL MEMBER

O SOCIO ONORARIO | HONORARY MEMBER

Vedi Art. 3, Statuto Assorrestauro | see Art. 3 Assorrestauro's Statute - www.assorrestauro.org

confcultura



CONFCULTURA

Via di Pietra 70 - 00186 Roma

Tel. +39 331 97672796

info@confcultura.it - www.confcultura.it

ANNO DI FONDAZIONE: 2011

A

E

cooperativa archeologia



COOPERATIVA ARCHEOLOGIA

Via Luigi La Vista 5 - 50133 Firenze

Tel. +39 055 576944 - Fax +39 055 576939

info@archeologia.it - www.archeologia.it

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ANNO DI FONDAZIONE: 1981
CERTIFICAZIONI: UNI EN ISO 9001 - UNI EN ISO 14001 - OHSAS

Cooperativa Archeologia nasce a Firenze nel 1981 per operare nell'ambito della ricerca, della conservazione e della valorizzazione dei beni culturali. E' attiva, per mezzo di sedi distaccate, su tutto il territorio nazionale e in alcuni paesi esteri. Cooperativa Archeologia dà priorità alla qualità dell'intervento e all'unicità e importanza sociale dei beni su cui agisce. Le attività vengono eseguite con un organico di oltre 200 operatori specializzati nel proprio settore di intervento e affiancati da consulenti scelti fra ricercatori altamente qualificati. Cooperativa Archeologia was funded in Florence (Italy) in 1981 to work in research, conservation and enhancement of Cultural Heritage. It operates through offices, all over the country and in some foreign states. Cooperativa Archeologia focuses his attention to the quality of the intervention and the uniqueness and social importance of the goods on which it acts. The activities are carried out with a staff of over 200 professionals specialized in their field of intervention and supported by consultants selected from among highly qualified researchers.



ANNO DI FONDAZIONE: 1980
CERTIFICAZIONI: Varie certificazioni tecniche rivolte al prodotto

"CIR - CHIMICA ITALIANA RESTAURI è un apprezzato e conosciuto produttore di formulati chimici ad alto contenuto tecnologico (prodotti nano-tecnologici, foto-catalitici, bio-degradabili, ecc.), studiati per le applicazioni nei settori del RESTAURO MONUMENTALE e dell'EDILIZIA CIVILE. L'offerta dell'azienda prevede, inoltre, una completa linea ANTIGRAFFITI ed una per il trattamento delle PAVIMENTAZIONI. CIR offre alla sua clientela un valido supporto di consulenza, formazione ed assistenza tecnica".

"CIR - CHIMICA ITALIANA RESTAURI is a well-known and popular manufacturer of high-tech chemical products (nano-technological, photo-catalytic, bio-degradable products, etc.), designed for the application in the sectors of RESTORATION OF MONUMENTS and CIVIL CONSTRUCTION. The offering of the company also provides a complete ANTI-GRAFFITI product line and a specific FLOORING product line. CIR offers to its customers a valuable support of consulting, training and technical assistance".

Via Isacco Newton 11 - 52100 Arezzo
Tel. +39 0575 1881015 - Fax +39 0575 984858
info@circhimica.it
www.circhimica.it

COSTANTER SPA

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Cristellotti & Maffei S.r.l.
RESTAURO - DIAGNOSTICA - ARCHEOLOGIA

CERTIFICAZIONI: OS 2-A / OS 25

La società Cristellotti & Maffei s.r.l. opera da oltre 20 anni. Interviene dalla diagnostica, alla progettazione, alla fase operativa fino alla documentazione ed alla divulgazione con conferenze, partecipazione a convegni e pubblicazioni. Attraverso lo studio dei materiali e dei fenomeni di degrado, effettuato anche in collaborazione con Università e Centri di ricerca, la società è in grado di adempiere a qualsiasi incarico nel campo della diagnostica, del restauro e nel campo archeologico.

The company Cristellotti & Maffei LTD works for over 20 years. The corporation operates in the setting of diagnostics and of restoration, from the realization of the projects of work to the operational steps, up to the documentation and dissemination through conferences and publications. The company is able to carry out every task in the field of diagnostics, restoration and archaeology, by means of the study of materials and degradation causes, also run in collaboration with university and research facilities.

Via Cesare Abba 2 - 38122 Trento
Tel. +39 0175 219040
Fax +39 0175 5219040
m.cristellotti@libero.it
www.cristellottimaffei.it

1

CATEGORIE | CATEGORIES

1 ANALISI E PROGETTO | TESTING & DESIGN
2 MATERIALI | MATERIALS
3 INTERVENTI | TYPE OF WORKS
4 APPARECCHIATURE E TECNOLOGIE | EQUIPMENT & TECHNOLOGIES
5 SERVIZI | SERVICES

12



BRESCIANI
Materiali ed Attrezzature per
il Restauro e la Conservazione

2 Via Breda 142 - 20126 Milano
Tel. +39 02 27002121 - Fax +39 02 2576184
4 info@brescianisrl.it
www.brescianisrl.it

BRESCIANI SRL

Commercio e produzione di materiali ed attrezzature per il restauro, la conservazione, la diagnostica, gli arredi museali. Progettazione e realizzazione di laboratori ed attrezzature per l'analisi e per il restauro del patrimonio culturale. Società certificata UNI EN ISO 9001:2000
Trade and production of material and equipments for restoration, conservation, diagnostic, furniture museum. Design and construction of laboratories and equipment for analysis and restoration of cultural heritage. The Company is certified UNI EN ISO 9001:2000

CERTIFICAZIONI: UNI EN ISO 9001 : 2008
ANNO DI FONDAZIONE: 1988



centrica

CENTRICA SRL

1 Piazza della Madonna della Neve 5 - 50122 Firenze
Tel. +39 055 2466802 - Fax +39 055 2009785
info@centrica.it - www.centrica.it

Specializzata nel campo dell'immagine digitale ad altissima risoluzione e della comunicazione visiva interattiva, Centrica, dal 1999, realizza interventi in ambito di conservazione e valorizzazione del patrimonio culturale, ponendosi come punto di riferimento per musei, fondazioni, aziende, PA e ovunque sia necessario un trattamento di elevata complessità delle componenti visive. Nel 2015 Centrica ha fondato Virtuality per la produzione di mostre virtuali itineranti, interattive e immersive.
Specialized in digital imaging at very high-resolution and in interactive visual communication, Centrica, since 1999, carries out interventions in the field of conservation and enhancement of cultural heritage, being a reference point for museums, foundations, private companies, PA and wherever a high complexity treatment of visual components is necessary. In 2015 Centrica has founded Virtuality to produce interactive and immersive virtual exhibitions.

ANNO DI FONDAZIONE: 1999



CIANCULLO MARMI SRL

2 Via Wenner 45 - 84131 Salerno
Tel. +39 089 301306
Fax +39 089 302104
info@cianculllo.it
www.cianculllo.it

La Cianculllo Marmi è un'azienda storica campana che vanta più di cento anni di attività nella lavorazione del marmo e delle pietre naturali. Gli attuali titolari, Paola e Massimo Cianculllo, hanno ereditato l'antico mestiere dalle abili mani del loro bisnonno, raffinato scultore della fine dell'Ottocento. Le due generazioni che si sono succedute hanno trasformato radicalmente la vecchia "bottega artigiana", creando un'industria e un fiorente commercio prima in tutta l'Italia meridionale e poi in tutto il mondo. La Cianculllo marmi è in grado di offrire, con il supporto dei suoi architetti, anche un servizio di consulenza completo sulle principali tecniche di montaggio, manutenzione e utilizzo e trattamento dei materiali, nonché sviluppo di fattibilità per progetti particolarmente complessi, affiancando il cliente in tutte le fasi: dalla consulenza sui materiali all'assistenza in cantiere.
Cianculllo Marmi belongs to an association of historical firms boasting an over 100 years old tradition in the field of natural stone working, handed down from generation up to the third generation of Cianculllo's family. The actual holders, Paola and Massimo Cianculllo, have inherited the ancient one "work" from the skilled hands of their great-grandfather, refined sculptor of the end of the eight hundred. The two generations that have succeeded have transformed radically the old one "artisan shop", creating all over the world before an industry and a flourishing commerce in the whole southern Italy and then all over the world. The Cianculllo marmies it is able to offer with the support of his architects also a complete consulting service on the principal techniques of assemblage, maintenance and use and treatment of the materials. And also for development of plans particularly complex, placing side by side the client in all the phases: from the consultation on the materials to the assistance in the yard.



CNR - ISTITUTO DI SCIENZA E TECNOLOGIA DEI MATERIALI CERAMICI (ISTEC)

1 Via Granarolo, 64 - 48018 Faenza (RA)
Tel. +39 0546 699711 - 699773
Fax +39 0546 699719
istec@istec.cnr.it
www.istec.cnr.it

Istituto di Ricerca, specializzato nell'attività di caratterizzazione di matite, ceramiche, lapidei e mosaici antichi e identificazione dei processi di degrado (archeometria e diagnostica). Sviluppo matite da restauro. Geopolimeri per il restauro. Normazione italiana ed europea. Formazione.
Research institute specializing in characterizing mortars, ceramics, stones and ancient mortars and identifying deterioration processes (archeometry and diagnostics). Development of restoration mortars. Geopolymers for restoring. National and European standard activity. Training.

ANNO DI FONDAZIONE: 1980



BS SRL

1 Via S. Anna dei Lombardi 16 - 80134 Napoli
Tel. +39 081 5519274 - Fax +39 081 5518338
info@b5srl.it - www.b5srl.eu

ANNO DI FONDAZIONE: 2005
CERTIFICAZIONI: UNI EN ISO 9001:2008 – Erogazione di servizi di ricerca storica, consulenza, studi di fattibilità, progettazione e direzione lavori di opere di architettura e ingegneria civile
La società BS Srl indirizza e promuove l'esperienza e la specializzazione in progettazione architettonica e strutturale, consolidamento e restauro degli edifici, direzione lavori in Italia e in Europa, di uno studio professionale di tradizione più che trentennale, con le competenze in materia di innovazione tecnologica e metodologica di giovani professionisti affermati (arch. Francesca Brancaccio), attraverso i contributi e le specificità dei singoli soci. La BS Srl opera nell'ambito di un Sistema di Qualità, adottando al suo interno e nei rapporti con i committenti i criteri espressi dalle Norme UNI EN ISO 9001:2000.
BS Srl engineering achieved a great experience and known-how in architectural and urban planning, in restoration of civil and monumental buildings, supervision of working in Italy and abroad, which comes from a successful long-term tradition, thanks to forty-year professional tradition with the innovative contributions and abilities of Francesca Brancaccio, Ph.D. and MA in architecture and Ugo Brancaccio, engineer both specialized in the restoration of monuments. BS Srl engineering operates in a Quality System, adopting in the relationship with customers, the criteria expressed by the regulations UNI EN ISO 9001:2000.



BUILDING IMPROVING S.R.L.

BUILDING IMPROVING SRL

2 Via MM Botardo 33 - 20127 Milano
Tel. +39 02 26111920 - Fax +39 02 26891321
info@buildingimproving.com
www.builtimproving.com

ANNO DI FONDAZIONE: 1994
Building Improving è una società di ingegneria che da oltre 20 anni progetta ed esegue lavori di consolidamento strutturale, miglioramento ed adeguamento sismico di edifici ed infrastrutture su tutto il territorio nazionale. Building Improving nasce nel 1994 operando inizialmente nella posa di materiali compositi (FRP) successivamente grazie all'introduzione di normative di riferimento - DT200/2004 - la Società si è specializzata in questo mercato anche con la progettazione dei compositi, la diagnostica preventiva e la verifica del rinforzo.
Building Improving srl is an engineering company specialized in construction work and infrastructure for over 20 years. The company is very active in the growing market for structural repairs and adjustments seismic, it has matured - thanks to its deep experience in the field and synergies with leading manufacturers in the industry - a thorough understanding of all the technologies available on the market (FRP, seismic isolators, etc.).



sistemi di fissaggio BOSSONG®



BOSSONG SPA

2 Via E. Fermi 49/51, 24050 Grassano (BG)
Tel. +39 035 3846011 - Fax +39 035 3846012
consolidamento@bossong.com
info@bossong.com - www.bossong.com

ANNO DI FONDAZIONE: 1962
CERTIFICAZIONI: ISO 9001: 2008
CE-ETA 11/0396 CE-ETA 09/0140 CE-ETA 09/0246 CE-ETA 11/0344
CE-ETA 11/0345 CE-ETA 08/0208 CE-ETA 11/0377
Filiali: Roma
Dal 1962 progettazione, produzione, commercializzazione di sistemi di fissaggio e sistemi di consolidamento per l'edilizia per applicazioni che vanno dal semplice ancoraggio ai più complessi interventi di consolidamento strutturale. Ai tradizionali ancoranti meccanici e chimici abitualmente utilizzati in edilizia si affiancano tecnologie per il rinforzo di strutture in muratura specifiche per interventi su manufatti di particolare interesse storico-architettonico.
Since 1962 design, manufacturing and selling of fixing and strengthening systems for building industry for simple fixing applications to complex strengthening intervention. A range of traditional mechanical and chemical anchors is integrated with technologies specially designed for masonry structures and in particular for historical buildings.



BOVIAR SRL

1 Via Rho 56 - 20020 Lainate (MI)
Tel. +39 02 93799240 - Fax +39 02 93301029
info@boviar.com - www.boviar.com

ANNO DI FONDAZIONE: 1969
CERTIFICAZIONI: ISO 9001: 2008 QUALITY MANAGEMENT SYSTEM
Filiali: Napoli
Fornitura, assistenza, noleggio di strumentazione geotecnica e geofisica-apparecchiature per controlli non distruttivi del costruito-diagnostica del calcestruzzo, delle murature e del legno. Supply, assistance, rental of geo-technical and geophysical instrumentation for non-invasive checks on constructions, diagnosing concrete, masonry and wood.



AN.T.A.RES SRL

2 Via A. Moro 24/A - 40068 San Lazzaro di Savena (BO)

4 Tel. +39 051 6259816
info@antarestauro.it
www.antarestauro.it

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archeoRes

archeologia e restauro

ARCHEORES SRL

3 Via Sirente 13
67051 Avezzano (AQ)
Tel +39 0863 447710 - Fax +39 0863 415643
info@archeores.it
www.archeores.it

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ARCHIMETER SRL

High Precision Surveys

1 Via Baillia 192 - 76012 Canosa di Puglia (BT)
Tel +39 0883 887466 - Fax +39 0883 887466
info@archimeter.it
www.archimeter.it

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ASSOCIAZIONE TECNOLOGI PER L'EDILIZIA

ATE - ASSOCIAZIONE TECNOLOGI PER L'EDILIZIA

5 Viale Giustiniano 10 - 20129 Milano
Tel: 02 29419444 - Fax: 02 2920508
ateservizi@tiscali.it - www.ateservizi.it

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ANNO DI FONDAZIONE: 1995

CERTIFICAZIONI: SOA: OG01-classe I, OG02-classe V, OS02-classe II, OS25-classe IV

AN.T.A.RES srl offre un'ampia gamma di prodotti, attrezzature e servizi per la conservazione e ed il restauro dei beni culturali. La qualità dei prodotti, garantita da test sul campo e di laboratorio ed il continuo monitoraggio applicativo, assicura interventi di restauro attenti e rispettosi. Lo staff tecnico di AN.T.A.RES ha una lunga e consolidata esperienza. AN.T.A.RES offre inoltre un servizio di analisi diagnostica.

AN.T.A.RES srl offre a wide range of products, equipment and services for the conservation and restoration of cultural heritage. The quality of products, pre-launch field tests and continuous application monitoring ensure that the products and equipments meet the needs of a care-full, conscious and focused restoration. The technical team of AN.T.A.RES srl have a long and consolidated experience in the conservation field. AN.T.A.RES srl perform chemical, biological and imaging analysis applied to cultural heritage.

L'idea imprenditoriale dell'archeoRes prevede la fusione delle logiche imprenditoriali con la passione per il restauro e la conservazione del patrimonio architettonico, artistico e archeologico. Utilizzando le competenze e le conoscenze dei soci fondatori. La società opera su tutto il territorio nazionale nel settore specialistico del restauro monumentale, della ristrutturazione e del consolidamento di edifici storici, del restauro artistico e nel settore archeologico comprensivo di tutti i servizi d'indagine conoscitiva. La società possiede un know how di assoluto valore, con competenze riconosciute dei propri tecnici esperti nelle specifiche discipline che consentono di poter fornire un prodotto finale di altissima qualità.

The archaeoRes business idea foresees the merger of entrepreneurial logic with a passion for restoration and conservation of architectural, artistic and archaeological heritage, using the skills and the knowledge of the founding partners. The company operates on throughout the country in the following specialist areas: renovation and consolidation of historical buildings, art restoration and in archaeological sector including all services of fact-finding investigation. The company has a "know-how" of absolute value, with recognized expertise of its own technicians, experienced in their specific disciplines that allow to provide up a high quality final product.

La società Archimeter è impegnata nel settore dei rilievi di alta precisione. Specializzata in Laser Scanner 3D in diversi campi quali: archeologia, architettura, ingegneria, geologia. Si eseguono inoltre: Rilievi GPS, Fotogrammetria. Rendering di interni ed esterni. Termografia. Ricostruzioni 3D per l'archeologia. Virtual Tour. Una squadra di professionisti si rapporta di volta in volta con le diverse problematiche degli elementi architettonici, strutturali e storici oggetto di indagine, stilando il progetto di rilievo più adeguato per offrire il risultato migliore con la garanzia di serietà e professionalità.

Archimeter is a society committed in the field of high precision surveys. We are specialized in Laser Scanner 3D in different fields as: archaeology, architecture, engineering, geology. We realize: GPS Surveys, photogrammetry, rendering of internal and external, thermography, 3D reconstruction for archaeology, virtual tour. A team of professionals deals with the issues of the architectural, structural and historical elements under investigation, drawing the most appropriate survey project to offer the best result, ensuring seriousness and professionalism.

ANNO DI FONDAZIONE: 1990

ATE è nata nel Dicembre 1990 sulla spinta di diversi operatori nel campo dell'edilizia, è stata rifondata nel 2000 e nuavamente nel 2010. L'Associazione si propone di sviluppare e approfondire il patrimonio culturale in ambito tecnologico tramite uno scambio di esperienze e notizie operative.

ATE has been founded on December 1990 on the suggestion of several enterprises operating in the field of building construction. It has been re-founded on 2000 and again 2010. The main purpose of the Association is to develop and read the Cultural Heritage with a technical and technological overview by means of an exchange of expertise and operative updates.



ACROPOLI SRL - Salone dell'Arte del Restauro e della Conservazione dei Beni Culturali e Ambientali

Centergross - Via Mercanzia, blocco 2B, galleria A70, CP 39
40050 Forno di Angelato Bologna (BO)
Tel. +39 051 864310 / 051 6646832 - Fax +39 051 864313
info@salonedelrestauro.com
www.salonedelrestauro.com

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AHRCOS SRL - Architectural heritage restoration and consolidation for Structural Safety Srl

Via Torquato Secchi 5 - 400132 Bologna
Tel +39 051 725763 - Fax +39 051 3167983
amministrazione@ahrcos.it

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AIPAI
Associazione Italiana per il Patrimonio Archeologico Industriale

Piazzale Antonio Bosco 3/A - 05100 Terni
Tel. +39 0744 407187 (215) - Fax +39 0744 407468
info@patrimoniointerale.it
www.patrimoniointerale.it

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AIRES INGEGNERIA

Via Cesare Battisti 31 - 81100 Caserta
Tel. +39 0823 210435 - Fax +39 0823 1760540
info@airesingegneria.it - www.airesingegneria.it

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ANNO DI FONDAZIONE: 2008

Aires Ingegneria è stata fondata nel 2008 da tre ingegneri: Pasquale Crisci, Gennaro Di Lauro e Gianfranco Laezza. È uno studio specializzato nello sviluppo di progetti, nonché in servizi di consulenza, nei campi dell'ingegneria strutturale e sismica. Svolge servizi di progettazione, di direzione dei lavori per i nuovi edifici, nonché indagini strutturali, valutazioni di sicurezza e sismica per gli interventi di consolidamento di edifici esistenti. L'utilizzo di materiali innovativi è parte integrante dell'approccio progettuale. L'approfondita conoscenza dei materiali, delle tecniche e delle tipologie strutturali tradizionali, in particolare di quelle a carattere storico-monumentale, consente di risolvere agevolmente gli interventi di consolidamento e adeguamento sismico del costruito. Aires Ingegneria was established in 2008 by three engineers: Pasquale Crisci, Gennaro Di Lauro and Gianfranco Laezza. It is an Italian firm highly specialized in the development of projects, as well as consulting services, in the fields of structural and seismic engineering. The firm is capable of carrying out services in planning and in the supervision of works for new buildings, as well as structural investigations, safety assessments and testing services for rehabilitation interventions on existing structures. The latest generation of anti-seismic technologies and constructive techniques, extended to all types of traditional and ancient structures, allows working without difficulties on the restoration and seismic retrofitting of the cultural heritage assets.

ANNO DI FONDAZIONE: 1997

L'Associazione Italiana per il Patrimonio Archeologico Industriale (AIPAI), la sola operante in quest'ambito a livello nazionale, è stata fondata nel 1997 da un gruppo di specialisti del patrimonio industriale e da alcune tra le più importanti istituzioni del settore del Paese. L'AIPAI, articolata in sezioni regionali e commissioni di settore nazionali, conta oggi oltre 300 soci attivi e interagisce proficuamente con università, centri di ricerca, fondazioni, musei, organi centrali e periferici dello Stato (Ministeri, Soprintendenze, Regioni, Province, Comuni, Comunità montane, Agenzie di promozione turistica e di sviluppo, ecc.). L'Associazione ha firmato nel 2008 un protocollo d'intesa con il TICCIH (The International Committee for the Conservation of Industrial Heritage) che la riconosce come suo unico rappresentante in Italia. The Italian Association for Industrial Archaeological Heritage, the only one of its kind in Italy, was founded in 1997 by a group of industrial heritage experts and some of the most important Italian institutions in this field. It has over 300 members working in its regional sections spread all over the country and it cooperates with universities, research centres, institutions, museums, central and local State bodies (Ministries, Superintendencies, Regional and Provincial Authorities, Municipalities, Mountain Communities, Agencies for the promotion of tourism and local development, etc.). In 2008 AIPAI signed an agreement with TICCIH (The International Committee for the Conservation of Industrial Heritage), thus AIPAI became the official representative of TICCIH for Italy.

ANNO DI FONDAZIONE: 1965

AHRCOS è azienda leader per il restauro conservativo ed il consolidamento di strutture edili e storiche medievali, rinascimentali, barocche, settecentesche, ottocentesche e novecentesche. L'utilizzo delle tecnologie più avanzate, operando con sistemi multipli e brevettati, riconoscendo tra i propri valori quello dell'arte dal sapore antico, che insieme alla conoscenza dei materiali e delle tecnologie di consolidamento sempre più evolute, fanno del restauro parte rilevante del patrimonio culturale. AHRCOS è una leading firm involved in conservative restoration and consolidation of civil and historic structures. Using the most advanced technologies, operating with multiple and patented systems, and recognising that, among its own values, the art of antique taste together with advanced knowledge of instruments and consolidation technology, AHRCOS makes restoration a key part of its own professional DNA. AHRCOS has at its disposal a strong team that is in charge of Research and Development in cooperation with various Italian universities. Our knowledge of traditional techniques, together with committed research and experimentation of more developed intervention methods, allows us to work while fully respecting the nature and preservation of structures, and remaining conscious of the responsibility and commitment we devote to our work.

CERTIFICAZIONI: ISO 9001:2008 - Italiana ed Inglese. Certificazione SOA: 0601-classe IV-BIS, 0602-classe IV-BIS, 0603-classe I, 0507-classe I, 0521-classe III

Organizational office for Restauro, the "Art and Cultural and Environmental Assets Conservation Salon", the premier Italian event concerned with the conservation, protection and valorization of architectural, artistic and monumental heritage. Four busy days full of events (conferences, theme exhibits) and technical meetings with exhibiting companies, in what can be considered the European capital of Culture and Restoration. Show figures: 16,000 sqm in 6 modern and functional halls; more than 300 exhibitors; 30,000 visitors; 40 international conferences; 110 technical meetings organized by exhibitors; 10 theme exhibits.

Segreteria organizzativa di RESTAURO Salone dell'Arte e della Conservazione dei Beni Culturali e Ambientali; la prima importante rassegna in Italia per la conservazione, la tutela e la valorizzazione del patrimonio architettonico, artistico e monumentale. Quattro intense giornate ricche di eventi (convegni, mostre tematiche) e incontri tecnici con le aziende espositrici, in quella che può considerarsi una capitale europea della cultura e del restauro. I numeri del Salone: 16.000 mq in 6 padiglioni e funzionali; più di 300 espositori; 30.000 visitatori; 40 convegni internazionali; 110 incontri tecnici organizzati dagli espositori; 10 mostre tematiche.

COME SVOLGE ASSORESTAURO LA PROPRIA ATTIVITÀ ?

L'attività promozionale e di internazionalizzazione svolta da Assorestaurò in rappresentanza delle proprie aziende associate e del comparto del restauro avviene attraverso molteplici azioni di coordinamento che trovano la loro rappresentazione nella pubblicazione dei QA_QUADERNI DI ASSORESTAURO e nella comunicazione attraverso il sito internet.

I QA_QUADERNI DI ASSORESTAURO sono la rivista ufficiale dell'Associazione e presentano i cantieri, i progetti e le attività svolte dai soci nell'ambito di specifici progetti. Se fino ad ora la loro pubblicazione è sempre stata legata a specifiche iniziative, spesso internazionali, la programmazione futura, anche in virtù dell'assegnazione di un codice ISSN dal 2016, prevede la pubblicazione di ulteriori numeri focalizzati su temi del settore con taglio istituzionale e/o carattere scientifico scaturiti dalla raccolta dei numerosi contributi di valore culturale e scientifico presentati nell'ambito di occasioni formative e conve-

gnistiche organizzate nel corso dell'anno.

Ai Quaderni di Assorestaurò si affianca l'attività di comunicazione svolta dal sito internet dell'associazione (www.assorestaurò.org) totalmente rinnovato nel corso del 2015. Disponibile in lingua italiana e in versione inglese, il sito assolve all'importante compito di veicolare le attività associative in fase di svolgimento ad un ampio pubblico di utenti frequentatori del sito e, contemporaneamente, svolge attività di comunicazione diretta tra Associazione ed Aziende associate attraverso un apposito canale che consente la consultazione dei suoi contenuti su un piano pubblico ed un secondo piano riservato. In continuo aggiornamento ed ampliamento, il sito internet ha l'obiettivo di raccogliere e presentare in forma sintetica le attività dell'Associazione svolte a partire dal 2005, anno della sua fondazione.

PROGETTI INTERNAZIONALI FUTURI NEXT INTERNATIONAL PROJECTS



The promotional and internationalization activities developed by Assorestaurò in the interest of its member companies and of the restoration sector consist of a number of actions, including the publication of the QA_QUADERNI DI ASSORESTAURO and communication via website. The QA are the Association's official magazine, which offers coverage of ongoing sites, projects and activities developed by the members within special projects. While originally published for special initiatives, often held at international level, starting from 2016 – when an ISSN code was finally assigned to the magazine – further issues will be published to cover some relevant topics for the sector. With an institutional and/or scientific approach, these editions will collect the numerous contributions of cultural and scientific value presented during training actions and conferences held throughout the year.

In addition to the publication of QA, Assorestaurò also develops communication activities through its website (www.assorestaurò.org), which was totally restyled in 2015. Available in Italian and English, the website plays the important role of diffusing the Association's ongoing activities to a wide public of users and, at the same time, ensures direct communication between the Association and its members through a special section allowing to browse the contents both publicly and through access to a reserved area.

Aziende associate attraverso un apposito canale che consente la consultazione dei suoi contenuti su un piano pubblico ed un secondo piano riservato. In continuo aggiornamento ed ampliamento, il sito internet ha l'obiettivo di raccogliere e presentare in forma sintetica le attività dell'Associazione svolte a partire dal 2005, anno della sua fondazione.

HOW DOES ASSORESTAURO WORK?



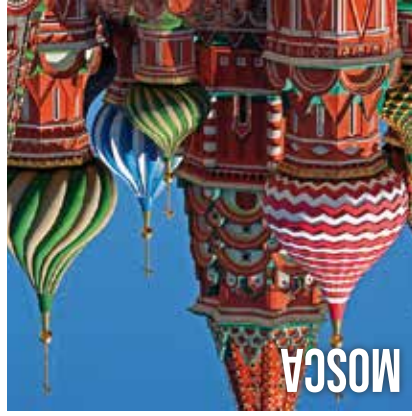
TURCHIA



STATI UNITI



LIBANO



MOSCA



PARIGI



TURCHIA

di esperienze nel settore del restauro e della conservazione tra esperti italiani e iraniani.

"Architectural restoration and strengthening of Historic Buildings" è il titolo del seminario svoltosi a Tabriz su temi strutturali e focalizzato sulle nuove metodologie per il rinforzo sismico ed il consolidamento strutturale di edifici storici e sui più avanzati metodi utilizzati sulle muraure storiche (mattoni in terra cruda, laterizi e pietra).

Il secondo seminario, dal titolo "Restoration & Conservation of Decorative Surfaces (Ornaments si è svolto a Isfahan sui temi delle superfici con approfondimenti sulle moderne tecnologie e metodologie utilizzate nel restauro, nella conservazione, nella pulitura e nel consolidamento di superfici intona-

■ ATTIVITA' FIERISTICHE 2017 – PARIGI E MOSCA

Assorestauro ha partecipato insieme ad ICE_Agenzia ad una collettiva italiana all'edizione 2016 del Salon du Patrimoine al Carrousel du Louvre a Parigi presentando alcune aziende del settore del restauro provenienti dalle Regioni della Convergenza (Campania, Puglia, Calabria e Sicilia).

Attività analoga per Parigi è prevista nel 2017 con l'intenzione di ampliare il numero di aziende partecipanti all'evento collettivo con agguirata di alcune iniziative convergenti.

Ulteriore iniziativa similare è in fase di organizzazione in Russia al Denkmal di Mosca.

■ ATTIVITA' PROMOZIONALE 2017-2018

Le attività promozionali organizzate da ICE_Agenzia in collaborazione con Assorestauro è rivolta ad Aziende associate e non associate e prevede seminari formativi/commerciali dedicati ad operatori specializzati nel settore del restauro. In particolare, essa si articola in attività di workshop e successivi B2B su alcuni temi specifici con attenzione alla conservazione dell'architettura urbana in termini strutturali e di consolidamento, metodi di conservazione delle superfici, prodotti e materiali a base di calce per il restauro. Nel biennio 2017-2018 le attività promozionali riguarderanno paesi quali il LIBANO, TUR-

CHIA e STATI UNITI.

to exchange experiences in the field of restoration and conservation between Italian and Iranian professionals.

"Architectural restoration and strengthening of Historic Buildings" was the title of the workshop held in Tabriz, with a focus on structural issues, the new methods of seismic reinforcement and structural consolidation of historic buildings, as well as the most advanced techniques used on historic masonry (clay soil, bricks and stone).

The second workshop about the "Restoration & Conservation of Decorative Surfaces (Ornaments)" was held in Isfahan to study in detail the modern techniques and methods available for the restoration, conservation, cleaning and consolidation of plaster, frescoes, stone, stucco, ceramics, etc.

■ PARTICIPATION TO TRADE SHOWS IN 2017 – PARIS AND MOSCOW

Assorestauro joined ICE_Agenzia at the Salon du Patrimoine 2016 held at the Carrousel du Louvre in Paris to stage an Italian collective exhibition of a number of restoration companies from the so-called Regions of Convergence (Campania, Puglia, Calabria and Sicily).

A new collective exhibition in Paris is scheduled for 2017 too, with a prospective growth in number of the companies involved and the organization of some conferences.

Another similar initiative is currently being organized at the Denkmal of Moscow, Russia.

■ PROMOTIONAL ACTION 2017-2018

The promotional activities organized by ICE_Agenzia in collaboration with Assorestauro are addressed to both member and non-member companies. They include training/marketing workshops for operators of the restoration sector. In particular, workshops and subsequent B2B encounters are centred on some special issues, including the structural conservation and consolidation of urban architecture, surface conservation methods, lime-based products and materials for restoration. In the years 2017-2018, some promotional activities will be launched in LIBANON, TURKEY and the UNITED STATES.



CUBA



CUBA - WORKSHOP 1



IRAN

WORKSHOP ICE

Attività di formazione con cadenza annuale svolta da Assorestauri su incarico di ICE e finalizzata alla promozione all'estero e all'internazionalizzazione delle imprese italiane attraverso azioni di coordinamento e di gestione scientifica del "Corso in Italia dedicato ad operatori esteri specializzati nel settore del restauro" e provenienti da paesi di primario interesse per il mercato del comparto della conservazione. Il Workshop, che si svolge tradizionalmente in contemporanea alla Fiera del Restauro di Ferrara, si sviluppa ogni anno intorno ad un tema specifico. "Nuovi approcci al restauro del costruito. Dalle superfici all'adeguamento funzionale e tecnologico" è il titolo dell'edizione 2016 che vede il coinvolgimento di paesi quali Iran, Russia, Kosovo, Albania, Libano, Messico, Stati Uniti, Angola, Mozambico e Israele, Turchia. Ulteriori workshop internazionali, su finanziamento ICE, sono svolti annualmente nell'ambito di programmi di cooperazione internazionale con paesi interlocutori selezionati.

ATTIVITÀ ALL'ESTERO

CUBA. Il progetto, nato con una missione organizzata da ICE nel 2009, si è sviluppato nel tempo su due differenti filoni di lavoro rispettivamente in Italia e Cuba. La firma del Memorandum fra Eusebio Leal, Historiador de la Ciudad de La Habana, per il Governo Cubano e Carlo Calenda, Viceministro MISE, per il Governo Italiano è l'atto istituzionale che ha costituito il primo passaggio formativo per la realizzazione del Centro Tecnológico italiano a Cuba sul Restauro ed il Design. I lavori di restauro iniziati nel 2016 in concomitanza con una serie di workshop che hanno seguito passo per passo l'evoluzione del cantiere di restauro, vedrà la sua conclusione alla fine del 2017.

IRAN. L'attività di formazione in Iran si è sviluppata nello scorso anno con due Seminari in collaborazione rispettivamente con la Tabriz Islamic Art University e successivamente la Isfahan University of Art con l'intento di realizzare un percorso di approfondimento scientifico di elevato spessore, come scambio

ATTIVITÀ ABROAD

CUBA. The project was launched with a mission organized by ICE in 2009 and was followed by two separate work activities held in Italy and Cuba, respectively. A Memorandum was signed by Mr. Eusebio Leal, Historiador de la Ciudad de La Habana, for the Government of Cuba, and by Mr. Carlo Calenda, the Vice-Minister of MISE, for the Italian Government. This institutional document made the first formal step for the establishment of an Italian Technology Centre of Restoration and Design in Cuba. The restoration works started in 2016, coupled with a set of workshops organized to follow the works step by step, and will be concluded late in 2017.

IRAN. The training activity in Iran was developed in 2016 with two workshops organized in collaboration with the Tabriz Islamic Art University and the Isfahan University of Art, respectively. The workshops were intended to start a high profile scientific discussion and



tive, e con il supporto di Istituzioni, Università, Organismi di Tutela dei Beni Culturali e ICE Agenzia per la promozione all'estero e l'internazionalizzazione delle imprese italiane.

Rientrano in questa tipologia di azioni sia attività promozionali nazionali (convegni e seminari formativi, fiere di settore, corsi e similari) sia iniziative promozionali e di immagine in termini internazionali (missioni all'estero, formazione, incontri b2b, cantieri di restauro) che vedono in prima fila le aziende associate, alle quali sono offerte opportunità di internazionalizzazione e studio dei mercati esteri attraverso progetti cofinanziati da enti nazionali e internazionali.

PROGETTI IN CORSO E PROGETTI FUTURI

La maggior parte dei progetti promossi da Assorestaura nasce e si sviluppa nel corso di più anni solari e vede l'attività di cooperazione con i paesi stranieri evolversi attraverso fasi conoscitive ed esplorative per poi attivare più concrete occasioni di collaborazione finalizzate all'esportazione del settore italiano del restauro. Tra i numerosi progetti internazionali in corso, se ne elencano di seguito alcuni più significativi.

FORMAZIONE IN ITALIA

Sul piano nazionale l'Associazione è attualmente attiva sul piano delle attività conoscitive e formative. In particolare, tre convegni sono in programma nel corso della Fiera del Restauro, con riconoscimento di CFP, dedicati rispettivamente al "Restauro del Moderno", "Progettare il restauro nel mondo: internazionalizzazione e protocollo di intesa tra Assorestaura e GBC Italia" e infine "Restauro degli edifici tutelati: miglioramento strutturale e conservazione" promosso dall'Ordine degli Architetti di Ferrara.

Il 2017 vede quindi la nascita di sinergia con il Green Building Council, con cui viene attivata una convenzione finalizzata ad azioni comuni e ad un sinergico programma di formazione e divulgazione. Assorestaura continua inoltre il programma formativo avviato nel 2016 con l'Ordine degli Architetti di Firenze sulle tematiche del Restauro dell'Architettura Moderna, ampliando la collaborazione con altri Ordini professionali.

TRAINING IN ITALY

The majority of the projects promoted by Assorestaura are developed over several calendar years. Cooperation with foreign countries evolves through preliminary prospective steps prior to implementing more concrete opportunities of collaboration aimed at exporting the Italian restoration sector. Some significant examples of ongoing international projects are listed below.

ONGOING AND FUTURE PROJECTS

analysis, design and on site execution, producing technology and materials, as well as contributing technological innovation, with the support of institutions, Universities, Agencies for the protection of cultural heritage and ICE, the Agency for the internationalization and the promotion abroad of Italian businesses. This class of actions includes both promotion in Italy (conferences and training seminars, trade exhibitions, courses and similar initiatives) and abroad (foreign missions, training, b2b encounters, restoration sites), where member companies are directly involved and offered the chance to study and penetrate foreign markets through projects co-sponsored by national and international bodies.

At national level, Assorestaura is currently organizing some conferences and training actions. In particular, three conferences are scheduled during the Restoration Exhibition, with participants earning CPE credits, dedicated to "Restauro of Modern Architecture", "Planning restoration worldwide: internationalization and memorandum of understanding between Assorestaura and GBC Italia" and "Restauro of listed buildings: structural improvement and conservation" promoted by the Roll of Architects of Ferrara.

In 2017, the Association will start a joint action with the Green Building Council, that is, the implementation of a convention aimed at shared activities, as well as training and information spreading initiatives. Moreover, Assorestaura will continue with an educational action started in 2016 in collaboration with the Roll of Architects of Florence about the Restoration of Modern Architecture, by involving other professional rolls.

CHI E' ASSORESTAURO ?

E' la prima associazione italiana tra i produttori di materiali, attrezzature e tecnologie, e i fornitori di servizi e imprese specializzate, nata nel 2005 per rappresentare il comparto nazionale del restauro e della conservazione del patrimonio materiale. Assorestauro è il punto di riferimento sia nazionale sia internazionale per chi voglia affacciarsi al mondo della conservazione italiana, intesa nel modo più ampio possibile, come sintesi delle svariate discipline che in esso convergono, delle professionalità specializzate, delle tecnologie e della crescente imprenditorialità. Un comparto che, se analizzato nel suo complesso, rappresenta una forte componente di mercato ed ha importanti ricadute nel settore turistico, dell'industria e della Green Restoration.

QUALI SONO GLI OBIETTIVI DI ASSORESTAURO ?

In rappresentanza di produttori di materiali, attrezzature, tecnologie, imprese specializzate, progettisti e fornitori di servizi per l'analisi, il rilievo e la divulgazione nel settore del restauro, Assorestauro fornisce alle imprese associate servizi di informazione, assistenza, consulenza e formazione sia direttamente sia attraverso i propri partner, al fine di dare coerenza e unità d'indirizzo alle diverse anime del settore sia a livello nazionale che internazionale. Come Associazione di Categoria Nazionale per il comparto del Restauro, Assorestauro coordina, tutela e promuove gli interessi del settore produttivo di competenza e rappresenta, in Italia ed all'Estero, le posizioni comuni sul piano tecnico, economico e di immagine attraverso attività mirate nell'ambito degli obiettivi di inquadramento di comparto, informazione e comunicazione, tutela degli interessi (sui piani economico, dell'immagine, dell'evoluzione normativa del Settore) ricerca e sviluppo, promozione.

COSA FA ASSORESTAURO ?

Le finalità associative si esplicano attraverso molteplici attività che promuovono le professionalità nel settore del restauro, dalla fase diagnostica e progettuale a quella dell'esecuzione in cantiere, passando per la produzione di tecnologie e materiali, anche con forti connotazioni tecnologiche innova-

WHAT DOES ASSORESTAURO DO ?

Several activities aimed at promoting the professional skills in the restoration sector fall in the scopes of the Association. They include diagnostic promotion, (economy, image, reference standards), research and development, as information and communication, protection of common interests well as image, by carrying out targeted activities in such relevant fields Italy and abroad, shared views about technical and economic issues, as of the restoration sector and it represents before the outer market, in tauro is aimed at coordinating, protecting and promoting the interests As a National Trade Association for the Restoration Sector, Assore-

WHAT ARE ASSORESTAURO'S GOALS ?

Representing manufacturers of materials, equipment, technology, specialist companies, designers and suppliers of services for analyses, surveys and diffusion, Assorestauro offers its members information, assistance, advice and training both directly and through its partners, with a view to building a consistent and unitary orientation to the different sectors of the restoration industry at national and international level. As a National Trade Association for the Restoration Sector, Assore-

WHO IS ASSORESTAURO ?

Established in 2005 as the first Italian association of manufacturers of materials, equipment and technology, suppliers of services and specialized companies, Assorestauro represents the Italian sector of restoration and conservation of material heritage. It is a reference in the domestic and international market for any business wishing to work in the conservation sector in Italy, to be intended in its broadest sense, that is, as a synthesis of the various disciplines involved, of the professional specialists, of the available technology and of the growing business community.

If examined as a whole, the sector accounts for a large market share and has a meaningful impact on tourism, industry and green restoration.



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