

# GuidoGroup

from 1916... more than **100 years** of history with an eye to the future



## RECENT MAIN EXPERIENCES

**No.Do. e Servizi Engineering Company**

**231** Società dotata di MODELLO ORGANIZZATIVO ex D.Lgs 231/2001

SOA LAGHI **uniter** UNI per la parte di gestione attività relativi cantieri

IAAS **inspect** ACCREDITED INFORMATION SECURITY ISO/IEC 27001:2022

oice

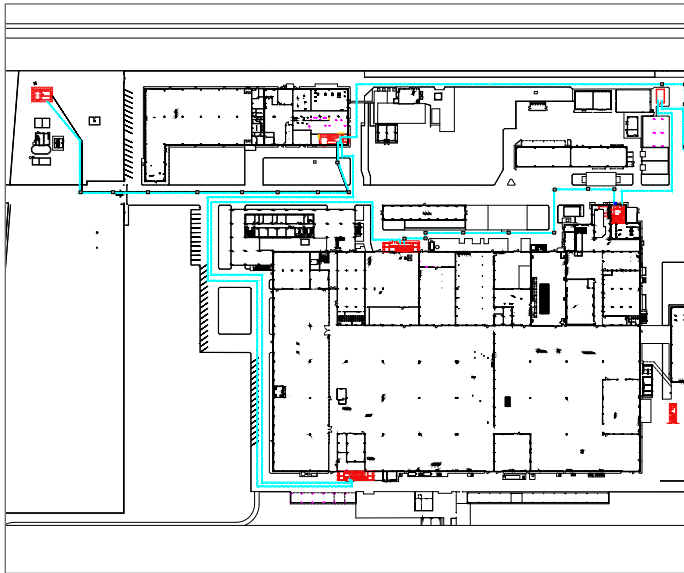
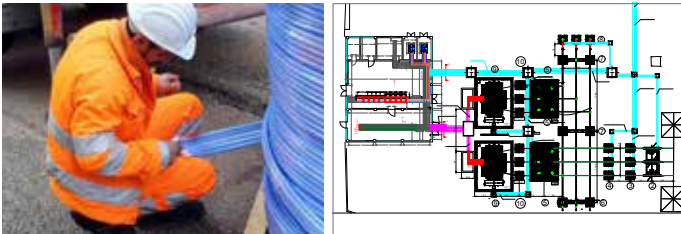
ISO 9001:2015 ISO 14001:2015 ISO 45001:2018 SA 8000:2014 ISO 50001:2018 ISO 37001:2016

IMS

# INSTALLATIONS

## Design and construction Digital HV/MV Substation

An integrated structural plant design was carried out for the construction of an Innovative 16 MW Substation. The substation is of the "digital" type, and all the commands and protections are transmitted with signals on optical fiber. All the equipment is connected in a loop and the fiber is laid in specially sized corrugated pipes in road excavations. The interface phase with Terna was also followed to obtain STMDs for the design and construction of the work



## Design and construction Large MV distribution network

The activity concerns the construction of a large MV distribution network for a LGS plant. In addition to the electrical works, a fiber optic ring was created for the connection of all the transformation substations, for a total length of approximately 3,000 metres. The introduction of the fiber network has allowed the installation of a SCADA system for the integrated management of the distribution network.

All preventive investigations were carried out using ground penetrating radar for the identification of existing subservices



The first Leonardo's CED in Italy for strategic importance

## Revamping and securing of the Data Processing Center

As part of the "IT Evolution" program, the revamping and securing of the CED of the LGS plant in Pomigliano D'Arco was designed and implemented.

The design involved increasing the redundancy of the power supply lines, installing a new 660 kW generator set and rationalizing the UPS circuit. A new monitoring infrastructure was also designed and built to serve the data center and a study was carried out for the integration of the air conditioning system.





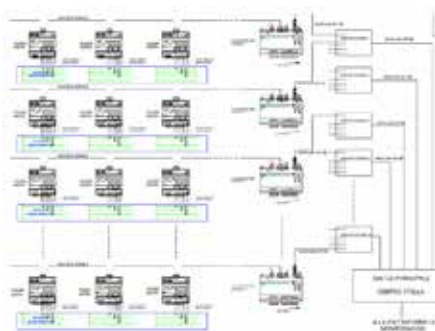
# ENERGY MANAGEMENT

## Monitoring infrastructures for energy diagnoses

As part of a national framework agreement with ENAV, various projects were carried out for the creation of local monitoring networks on individual sites owned by the entity, which include the Airport Control Towers, ACCs and Radar sites.

The local monitoring networks are also connected on a single network and shared in a monitoring platform created ad hoc for the client. This will be achieved through widespread wired networks and concentrator elements. PLCs will also be installed for saving and transmitting the monitored data.

The projects envisage the installation of electricity meters on the main energy-intensive users of the various sites being analysed. The project also plans to implement These meters are installed in new carpentry created ad hoc in order to limit the impact on the activities of the Client, which represents one of the companies of the highest national interest. The ultimate goal of the energy consumption monitoring networks will be the drafting of the Energy Diagnoses aimed at creating the corporate energy model for each site, and at defining possible improvements in energy efficiency in order to reduce energy costs and company's environmental impact.



## Energy efficiency improvement of the lighting system and Smart Cities services in the city of Rende

The project provides energy and functional upgrading of public lighting systems through efficiency measures, bringing them up to standard and integrating them.

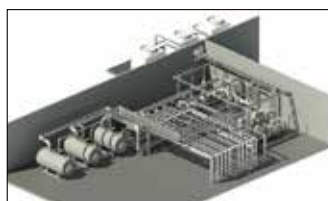
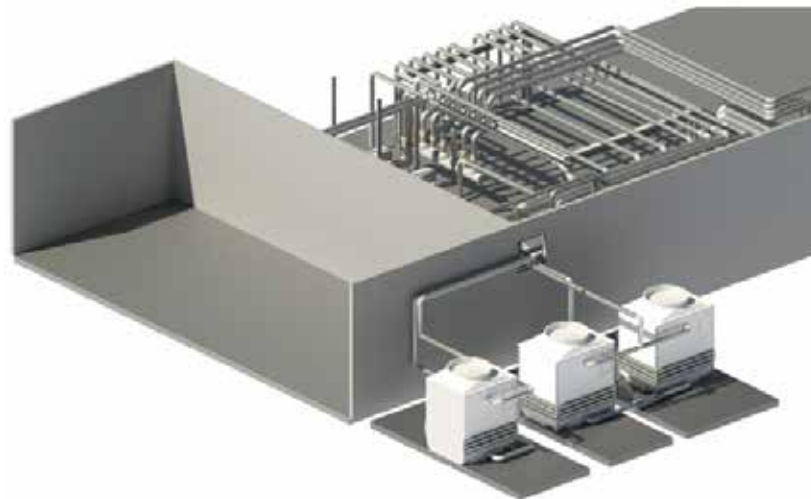
Efficiency goes through: the reduction of energy consumption thanks to the use of highly efficient and reliable LED technologies, in compliance with current legislation for street lighting, and the use of a remote control system that allows punctual, rational and efficient management.

The project also plans to implement

further the smart city service with some additional services such as the integration of points for environmental monitoring, video surveillance, monumental artistic lighting. The IoT solution was designed through the definition of the new supervision infrastructure with point-to-point management and luminous flux regulation following the innovative path of the Zhaga-4Di which allows maximum interoperability between the control system and the luminaire thus guaranteeing a setting of different parameters and fault signalling.



# MECHANICAL PLANTS



## Leonardo GS plant air conditioning system Building F4 - Grottaglie

The project aims to recreate the air conditioning system serving a large building used for industrial processing within the Leonardo SpA production plant in Grottaglie.

In addition to the works relating to the air conditioning of the building, the project involves the complete revamping of the plant's refrigeration plant, through the introduction of a new 1.8 MW water-cooled screw refrigeration unit with variable speed.

As can be seen from the renderings shown, the modeling of both the refrigeration plant and the sub-plant and the AHUs serving the Building was performed with the BIM/MEP methodology using the Revit reference software.

The chosen solution involves the installation of two Air Handling Units, which will be installed on the roof of the building to be conditioned.

In addition to the re-functionalization and revamping of the plant, the intervention involves a significant process of energy efficiency, linked to a reduction in dispersions and optimization of the sizing of the cooling and heating generation devices.

## Leonardo Global Solutions plant air conditioning system Building F13 - Frosinone

The project aims to create a new air conditioning system for a production building of Leonardo SpA. The temperature and humidity conditions required inside the building are quite stringent and challenging.

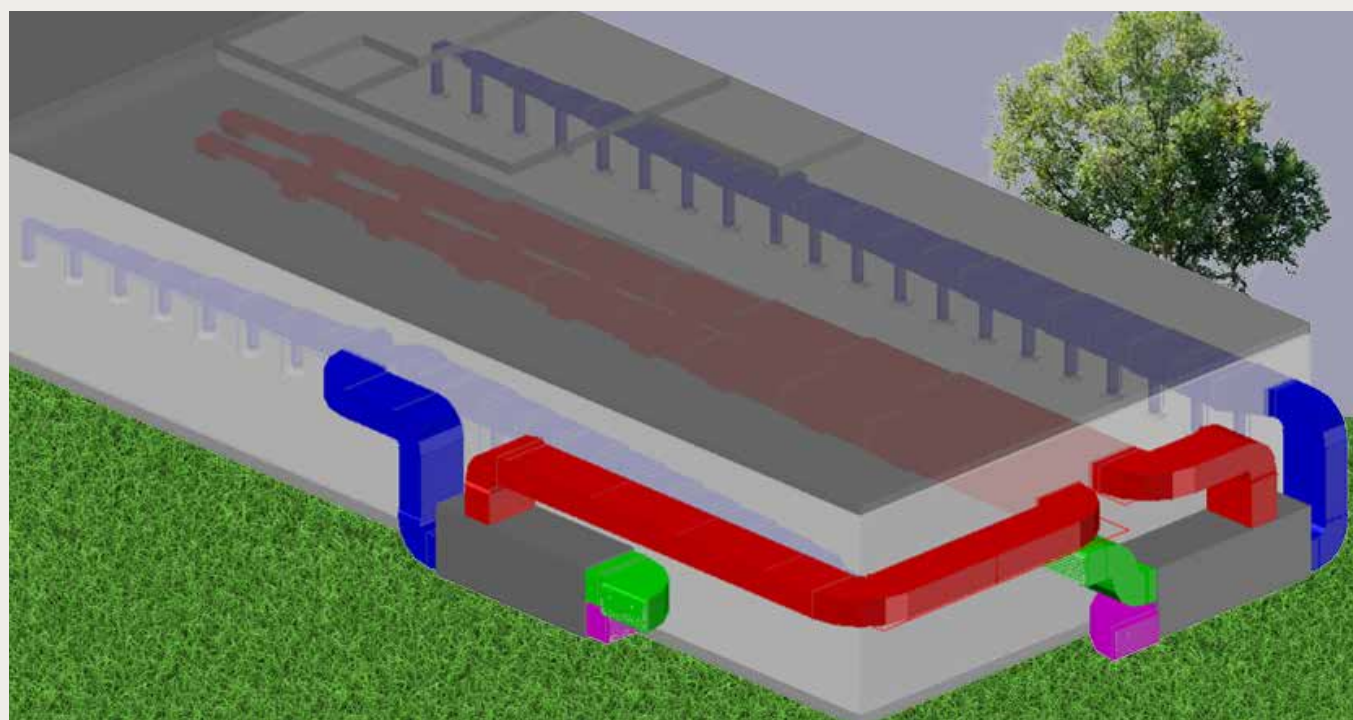
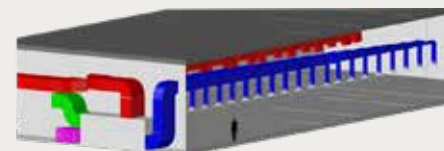
The design solution provides the introduction of two new Air Handling Units (AHUs) which provide for both air exchange as required by legislation and summer and winter air conditioning through the of 3 coils, one for pre-heating

of 120 kW, one for cooling of 180 kW, and one for post-heating of 180 kW.

The intervention therefore envisages the installation of a new refrigeration unit of approximately 350 kW.

While as regards thermal generation, the re-functionalization and recovery of an existing superheated water collector inside the building is envisaged. Again, the design choice was made in compliance with the constraints

The design was entirely carried out with the MC4 Software, from the energy model of the building to the design and sizing of the air ducts.





# ELECTRIC MOBILITY

## The first service station for electric vehicles only in Italy.

Enel X expressed the need to create a space that could represent the 'liveliness' of the company by offering its services to the customer. The main message to be conveyed is that of an "Enel X home" and how the services and products of Enel X (and its partners) can improve the quality of life of people and the environment in which we live. The project was therefore born with the aim of building an ecosystem in which the spaces dialogue with each other, creating a sort of 'square' where it is possible to find answers to one's needs in all the businesses in which Enel and Enel X are involved.

The intervention included:

- installation of 4 ultra-fast charging stations (HPC)
- installation of 2 Juice Pole type charging stations
- installation of two LED walls 10000 x 3000 pixels for the transmission of information and advertising messages
- installation of a photovoltaic system in coverage



Project render



Created works

### BEFORE AND AFTER

Project graphics and created work photos. BIM design and rendering gave our clients a wide and realistic idea of the project results



In the recent years, Design, Permitting, Works Management, CSP and CSE assignments have been carried out for the construction of over 3,000 charging infrastructures for electric vehicles throughout Italy



### Partner of the year

No.Do. began its collaboration with Enel in 2017, with the qualification as supplier for the "ENGINEERING SERVICES" category. The collaboration has led to the stipulation of more than 20 contracts with the companies of the Enel group (Enel Italia srl, Enel sole, Enel si srl, Enel x, Enel Produzione, Enel X Mobility, Enel Distribuzione, Endesa Energia). Standing out among these are the contracts for the design and installation of recharging infrastructures for electric vehicles, on the national territory, for which No.do. e Servizi was awarded as the best partner of the year by Enel X.



## High Performance Charging infrastructure on the Italian motorway network.

The Company's staff is taking care of all the engineering services for the installation of the charging infrastructure and the arrangement of the stalls and the area destined for the system. Design, construction management and CSE are currently underway on approximately 200 Ultra Fast HPC charging stations on the Italian motorway network. The development of the project goes from the structural analysis to the definition of the electrical diagrams for the construction of devices with nominal powers up to 1 MWel.

The HPC charging station consists of a set of electrical equipment consisting of a delivery cabin, a Medium/Low Voltage transformation cabin, an inverter unit and charging columns managed with special software, suitable for allowing the charging of electric vehicles and characterized by High Performance Charging (HPC). The HPC Station includes the components needed to connect several electric vehicles and charge them simultaneously. A typical recharging station consists of the following components:

- Delivery cabin
- User cabin
- MV 20000 V wiring, supply - switchboard - transformation
- Transformer unit (user cabin), 20000/480 V - Average power 1250 kVA (Transformer Unit);
- Low voltage AC wiring; power unit;
- DC wiring, connects the User Units to the Power Unit
- User unit, user interface and connector to the electric vehicle.



# ANTISEISMIC

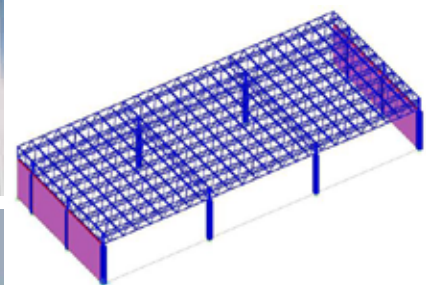
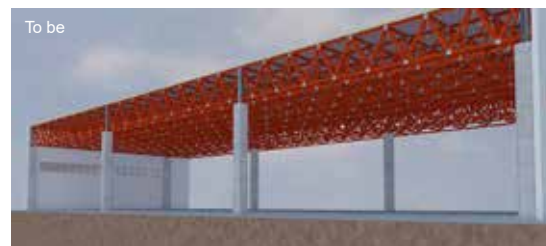
## Leonardo Global Solutions SpA Program for adapting the Leonardo Group's real estate assets to anti-seismic regulations.

The assignment falls within the case of assessing the structural safety of existing buildings, hosting sensitive installations with industrial production activities, with paramilitary characteristics (plants for the production of civil and military aircraft and helicopters). Leonardo's real estate assets are located throughout the country and consist of almost 900 buildings, of which 232 in the Southern Area.

The construction characteristics of the buildings and the activities carried out in them required a high level of professionalism. Among the objectives of the assignment, the creation of a "Seismic Census", or rather the Evaluation conducted with expeditious methodology on the building heritage for an initial screening and evaluation of the safety of the buildings in order to define the intervention priorities. In the next phase we proceeded with geometric-structural surveys and on-site tests for the characterization of materials and modeling with the finite element method aimed at planning improvement/adaptation interventions for the buildings most at risk.



MAIN TESTS CARRIED OUT: Passive seismic investigations. Measurement of environmental noise (microtremors) at the edge and on structures. Surface seismic surveys MASW. Geognostic surveys with continuous core drilling DPSH dynamic penetrometric tests. Mechanical characterization of materials. Ultrasound test. Taking samples of concrete and steel



Project modeling and rendering of the new reticular roof created for the 9C building in Foggia. The tubular structure was designed to reduce vertical loads and improve the seismic safety of the entire building.

## Design of a visco-elastic dissipator between two joint pillars

To limit the head hammering between two buildings of an industrial shed, No.Do has designed the insertion of a heat sink, of the fluid-viscous type, made hoc by a specialized company on the basis of the characteristics deriving from the project calculations.

The shock absorber works both in traction and compression, it allows slow displacements (thermal variations) while opposing adequate resistance to forces transmitted at high speed (earthquake). The insertion of the dissipator was analyzed through a non-linear dynamic analysis through the Sap 2000 calculation code and modeled through a "Damper" link element which simulates the characteristics of the device used and in particular the behavior law which represents the stiffness and the damping characteristics of the used damper.

In the following images the project model and the dissipator built.

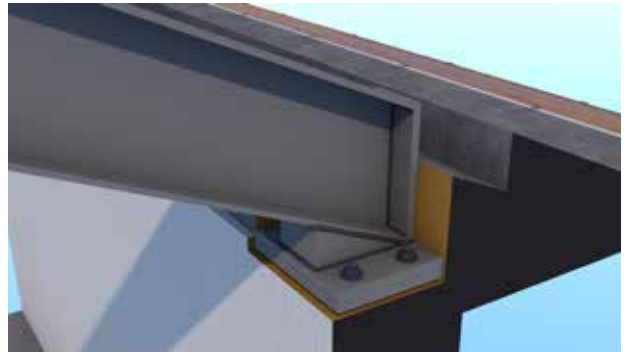
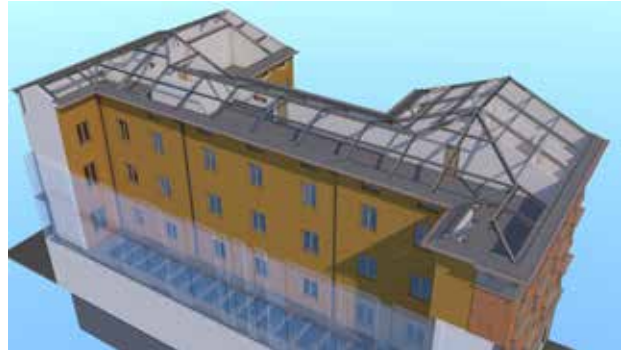




# STRUCTURAL SAFETY

## Seismic Improvement intervention BNL Reggio Emilia Headquarters

L'edificio sorge nel centro storico di Reggio Emilia e si sviluppa su 5 piani fuori terra e un piano interrato. La struttura è stata modellata con il metodo degli elementi finiti utilizzando vari elementi strutturali. In particolare le travi ed i pilastri sono stati schematizzati con elementi asta a due nodi deformabili assialmente, a flessione e taglio, utilizzando funzioni di forma cubiche. L'analisi sismica effettuata, nonostante la riduzione dei sovraccarichi di esercizio, ha confermato quanto ci si attendeva, cioè che la struttura non è in grado di resistere ad azioni sismiche se non di lieve entità. La concezione strutturale e le caratteristiche architettoniche sono tali da non permettere alle strutture di offrire le garanzie richieste, e ciò a causa di un elemento in particolare: la pesante struttura del piano sottotetto e della copertura, che impone da subito un elevato livello di sollecitazioni sugli elementi sottostanti e che comporta l'insorgere di forze di inerzia, direttamente legate alle masse in gioco, nel caso di azioni dinamiche. I risultati ottenuti hanno confermato le ipotesi già formulate, soprattutto in merito alla necessità di soddisfare due condizioni fondamentali: concepire un intervento poco invasivo, che non si ponga come obiettivo la trasformazione completa dell'organismo strutturale attuale, ma agisca in maniera il più possibile puntuale; **Diminuire sia i carichi permanenti sia la massa sismica dell'edificio, al piano copertura in particolare, mediante la demolizione della copertura esistente ed il rifacimento con una struttura più leggera, in acciaio, senza alcuna modifica alle linee di colmo e di gronda, o ai volumi ed alle sagome.**



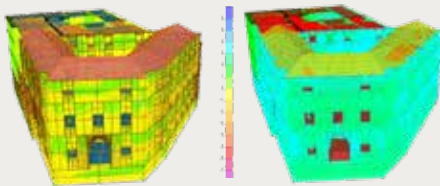
Posa della struttura in acciaio in sostituzione di quella in c.a. La nuova copertura ha ridotto notevolmente l'insorgere di forze di inerzia, legate alle masse in gioco, nel caso di azioni dinamiche



Dal modello BIM alla realizzazione in cantiere: i risultati del calcolo strutturale diventano direttamente cantierabili grazie all'elevata corrispondenza con la realtà esistente e futura.

### Analysis of stress states

Stress state for the combination used for the serviceability limit states connected to the seismic action. The building has some intrinsic criticalities showing solutions of continuity (cracking patterns). This phenomenon can be found in the model produced, in which it is noted that the masonry panels, in the crowning area with the roof, are subject to tensile stresses. The hypothesized intervention aims to uniformly redistribute the state of tension by inducing the wall panels to considerably reduce the onset of the traction phenomenon and therefore of the crack pattern.



Reinforcement of one of the arches on the ground floor, the reinforced arch technique opposes the formation of the hinges, which open alternately to the intrados and extrados, positioning a cable stretched across the intrados of the arch or vault.

## Improvement of BNL Macerata structural safety

The building consists of n. 3 floors ft and a basement, the load-bearing structure is made up of masonry with solid bricks, with variable thicknesses. The structural calculation was performed with the SAP2000 calculation code, calculation simulations were carried out for the different configurations: Static analysis in a linear field; Modal seismic analysis with frequency spectrum deriving from the seismic microzonation study, resulting from the investigation

Verification of displacements, deformations and stress levels in the elastic field.

The analysis revealed the need for some local reinforcement interventions on masonry elements, in order to strengthen the bonding conditions between incident walls and restore the cracks using the "unstitch-unstitch" technique. The vaults were also reinforced with interventions aimed at improving the union of the walls which, intersecting in pairs, form the corner of the vault. Furthermore, one of the arches at the ground floor was reinforced, which bears concentrated loads capable of creating cracks due to the sliding

# ANTISEISMIC BIM

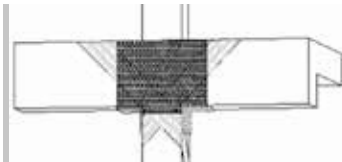
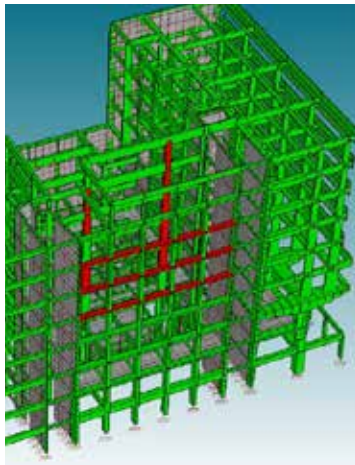
## BIM seismic improvement project BNL Catania Headquarters

The building has a reinforced concrete structure and consists of a basement, eight floors above ground and a flat, walkable roof. The aim is to increase the level of safety while not reaching the performance required by the standards for compliance. The project derives from the preliminary safety assessments and verification of seismic vulnerability of the existing structure, in order to determine the entity of the actions that the structure is able to sustain with the minimum level of safety required by the regulations. With the verification of the seismic vulnerability of the structure, the level of detail or knowledge LC3 was achieved.

In the range of solutions adopted for seismic improvement purposes:

- sistema CAM per le travi dai piani 3° al 5°;
- sistema di ritenuta con cuneo in acciaio per le velette-parapetto;
- metodo FRP per i pilastri 1, 2 dal piano 2° al 6° e i rispettivi nodi;
- sistema di ritenuta con profilati in acciaio per i due vani scala.

Al fine della sicurezza statica, inoltre, si sono utilizzati profili accoppiati in acciaio apposti al di sotto delle travi di cui sopra, a simulare un sistema passivo a sostegno dell'elemento in c.a. soprastante carente in prestazioni statiche nei confronti dell'azione tagliante.



### Reinforcement of beams with CAM system

The CAM system (active stitching of manufactured articles), consisting of bindings in total wrapping of the element, made by drilling the floor to allow the passage of pre-stressed tapes; the bindings are additional shear reinforcement, i.e. stirrups, whose expected improvements are for mostly in terms of shear strength, as well as, due to the effect of confinement, a moderate increase in bending strength and compressive ductility, increasing the rotational capacity of the section and therefore of the plastic hinge.



The structural design was implemented through the use of BIM modeling, which allowed immediate visualization of the location of the interventions.

Furthermore, the project was then exported to the BIMX hypermodel, which not only contains the entire project documentation from the 2D drawings to the entire 3D model, but allows real navigation via the viewer and overlays thanks to the specific app that can be downloaded on any mobile device that the customer is equipped with.





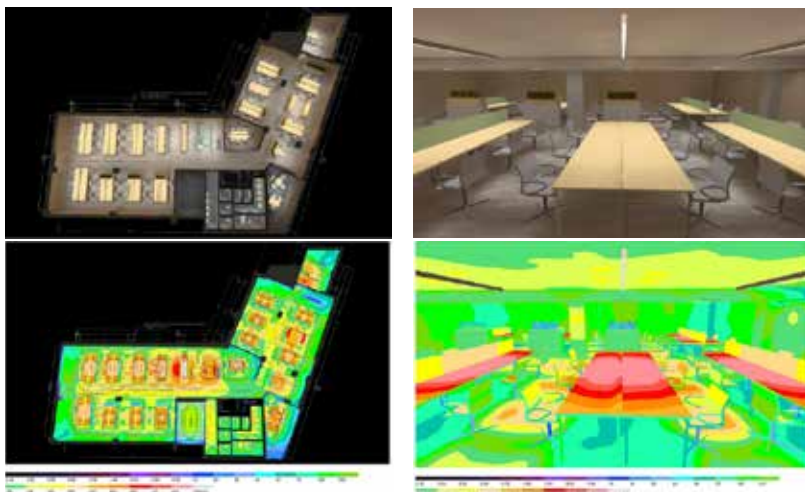
# SUSTAINABLE DESIGN

## Enel Italy Spa Energy, seismic redevelopment and extraordinary maintenance compliant with the Well protocol

In the context of Facility Management, the commitment to sustainability is of great importance and relevance. The technicians of No.Do. have gained considerable know-how in this direction by specializing and certifying themselves for the implementation of the LEED, WELL, ITACA protocols. For the redevelopment of the offices of the Enel Headquarters in Bari, as requested by the client, the project and the checks aimed at the building and plant redevelopment were conducted according to the dictates of the WELL protocol. WELL Building Standard does not address the issues of resource consumption (energy, water, virgin materials), but focuses on the elements of the design, construction and management of buildings, which directly and indirectly influence people's health. Total restyling of the internal areas, new external areas (children's play area and dog park), new parking lots for families, women, the disabled, bikers. The building in question is used according to a regular daytime use profile. For the analysis of the workstations for WELL evaluation, the following features were considered: verification of ventilation, thermo-hygrometric comfort, verification of natural light; focusing attention on the elements that influence people's health.

The systems have been streamlined and automated with a BMS system managed through a BACNET communication interface.

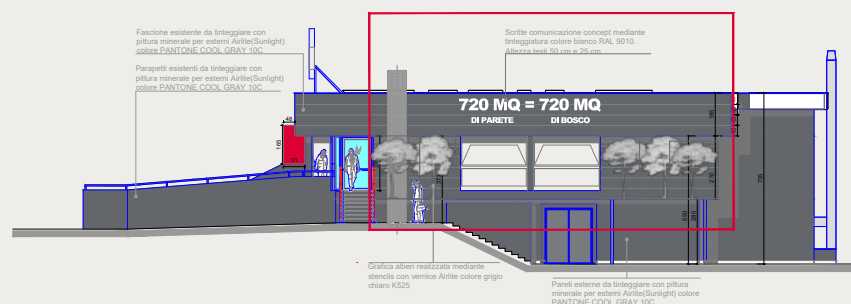
With a view to reducing noise in the environment and guaranteeing the placement of the plant equipment, it was envisaged that the spaces be equipped with sound-absorbing false ceilings



## Autogrill Italy Spa Autogrill redevelopment Sillarò West (A14 BO)

Total restyling of the internal areas, new external areas (children's play area and dog park), new parking lots for families, women, the disabled, bikers.

The internal restyling includes interventions aimed at implementing new customer services and the insertion of new commercial F&B Concepts, with the relative identification in the layout. A complete rearrangement was implemented, visual barriers were eliminated by increasing the brightness of the environment and user flows were rationalized in order to increase the freedom of customer movement. Externally, for the purposes of redevelopment of the refreshment point, it was applied to the facades an innovative technology that purifies the air combined with communicative graphics, as well as the creation of a new image of the entrance portal/shelter.



# DECOMMISSIONING

## Enel Italia Spa Project for the decommissioning and environmental remediation of ENEL

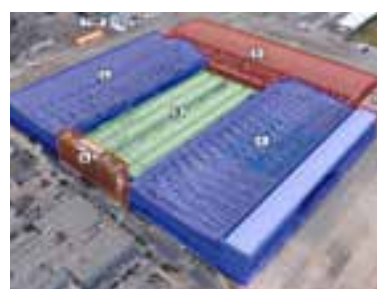
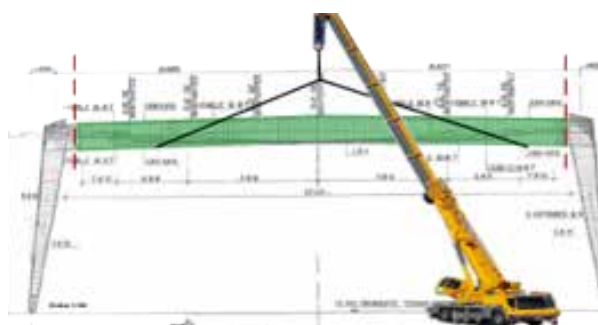
The assignment concerned all the activities aimed at the correct environmental management of the decommissioning sites of large Enel power plants. In particular, in addition to making all the players involved aware of a preventive action against accidents and environmental emergencies, great attention was paid to the correct management of waste material flows from processing and to the verification of correct disposal practices. The intervention involved the Enel plants in Brindisi, Bari, Rossano (CS), Catania, Livorno, Montalto di Castro (VT), Fusina (VE) and Portoscuso (CI)



## Rome airports Deconstruction of Fiumicino hangar buildings

On behalf of ADR, the deconstruction study of some imposing buildings belonging to the functional complex of "ROME AIRPORTS". Object of the complex decommissioning plan are hangars, technical rooms, workshops, canteen rooms, customs gates and aircraft

parking aprons. The deconstruction study was based on the criterion of selective dismantling of the buildings. The decision to implement a controlled and selective deconstruction makes it possible to distinguish fractions suitable for reuse as secondary raw materials.





# ARCHITECTURE DESIGN

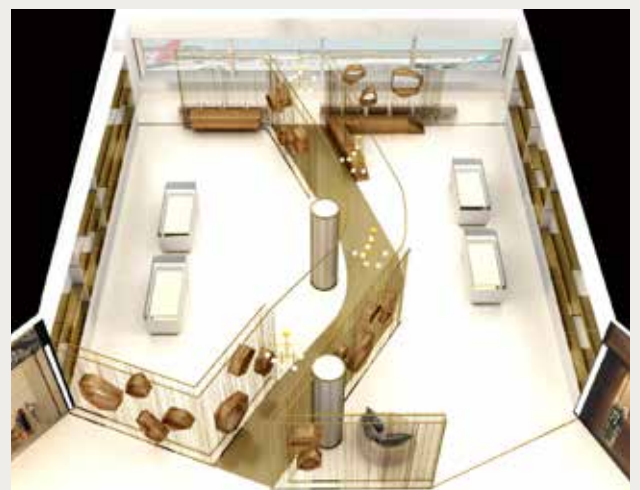
## Rome airports PRM passenger parking area project Retail area restyling (Passengers with Reduced Mobility)

As part of the design activities for the development of the terminal system of the "Leonardo Da Vinci" international airport of Fiumicino (RM), together with the focus on interior design, an in-depth analysis was requested on the configuration of the areas dedicated to the parking of PRM passengers. We proceeded with the creation of an "open, permeable and visually integrated although recognizable concept, which provides for flexible and modular furnishings, with modular seats of the electrified type. All designed obviously following the requirements of the legislation regarding the elimination of architectural barriers and safety.



## Rome airports Retail area restyling

As part of the design activities for the development of the terminal system of the "Leonardo Da Vinci" international airport of Fiumicino (RM), we were asked for a study concept for the architectural and design renovation of the commercial premises to be used by major brands all over the world. inside Terminal 3





# HOSPITAL DESIGN

## Day Hospital multifunctional center project - Intensive care unit with post-acute and post-intervention hospitalization - Rende (CS)

The new structure will have the objective of providing hospitalization services for assistance and functional recovery of patients who have passed the acute phase, but who require further intensive evaluation and therapeutic interventions that cannot be efficiently provided in alternative regimes to hospitalization.

The recipient patients are affected by significant disabilities or serious pathologies which cause temporary non-self-sufficiency and which require specialist rehabilitative medical protection and highly specialized nursing interventions over a 24-hour period that cannot be provided outside the hospital.

The future structure will therefore have to deal with the organization and provision of services aimed at the care and rehabilitation of subjects with temporary or

stabilized and will be organized in specific modules with respect to the different therapeutic objectives.

The following are foreseen: an Intensive Care Unit intended for the assistance of all degenerative diseases of the nervous system; a specialized intensive cardiological and cardiorespiratory module; a Dementia Care Module (Alzheimer's type); a room for worship, a room for the barber and hairdresser and one for the podiatrist. A large space will be dedicated to the training of internal staff with the possibility of organizing events with refresher courses and holding conferences for the dissemination of the activities carried out and to promote those to be carried out.

Also at the first level is the Analysis Laboratory Service and that of Diagnostic Imaging with Ultrasound and Traditional

radiology which all Care Units will be able to use.

On the second level there will be the main entrance for reception and waiting, with spaces dedicated to social activities and rooms for patients to stay with visiting relatives, as well as a corner bar.

On this level, ample space is dedicated to all those daytime activities of Diagnosis and Rehabilitation with Specialist Medical Clinics, Group activity rooms and Gyms, Rehabilitation Studios with personalized Specialist Therapies.

Since it is a newly constructed building, although it does not have a specific constraint in this regard, the design team intended to proceed with the provision of a highly innovative plant-building system to achieve the characteristic **Class n-ZEB Building (nearly Zero Emission Building)**

