

# Insula ensures that canals remain navigable

As time passes, the canals tend to fill up. Insula cyclically dredges the sludge to avoid endangering navigation and allowing sanitary conditions to deteriorate.



Photos by Daniele Resini

Rio dei Frari before removal of the sludge.

Rio de le Toresese.



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Dredging in the water is done with hydraulic shovels that collect the excess sludge, especially in the central section of the canal to avoid damaging the walls of the banks. Dredging in the water is generally a preliminary measure before dry dredging, when the canal is isolated with watertight pilings so that the work may be carried out with greater precision and the embankment walls restored.

[www.insula.it](http://www.insula.it)

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# Insula protects the safety of the embankments and the buildings

The walls of the buildings along the water and the embankments are constantly exposed to decay caused by the water that disintegrates the walls and puts the building foundations at risk. Insula enacts a vast programme to restore the embankment walls, consolidating them by replacing damaged bricks or rebuilding entire sections of the walls.



Rio del Mondo novo.



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Once the walls have been jet-cleaned, it is possible to ascertain with precision the extent and the depth of the decay. In the more severe cases, the restoration can require the reconstruction of entire sections of masonry. In other cases, missing or crumbling bricks are replaced and the mortar joints are sealed. These procedures restore the structural stability of the wall and make it waterproof.

Once the facing of the embankment walls has been restored, special blends are injected inside the wall masses to compensate for the material washed away by the water because of the rise and fall of the tides, the wave motion, the vortices created by propellers, the boats hitting against the walls.

Rio di San Barnaba.

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# Insula guarantees pedestrian circulation

When Insula intervenes on the underground utilities grids or on the sewers, it takes the opportunity to restore the paving of the city streets, smoothing out depressions and irregularities.



The wear and tear caused by man, frost, sun, water (and salt) gradually disintegrates the trachyte of the masegni (the stones that make up the paving) and cause it to break, making it necessary to replace them. It is preferable to replace the individual damaged and non-functional masegni, putting the intact elements back in their place.

Campo San Lorenzo.

Insula raises the paving in the lowest areas of the city to achieve a level, where possible, of +120 cm over the zero-tide level of the Punta della Salute. The tide rises above this level only once or twice a year.

Raising the paving just a few centimeters is enough to ensure circulation through a street even during a particularly high tide. In this case it is easy to compare: the part of the street that has not yet been raised is completely flooded.



Rio terà San Leonardo.

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# Insula restores and rebuilds the bridges of Venice

Insula intervenes on the bridges of the city by reinforcing the structure, restoring the masonry, repairing the steps, consolidating the balustrades. When the deterioration of the structure is particularly severe, Insula chooses to rebuild it completely.



Bridge of San Girolamo.

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The stone bridges undergo processes of deterioration: loss of plaster under the surface of the vault, the voussoirs slipping out of place, cracking, loss of consistency. In particular, in the intrados of the vault, the stones are sometimes corroded and the mortar disintegrated, because of the condensation of the salt water in the atmosphere on the surface, with the consequences this entails in terms of the safety and integrity of the elements. When there are no alternative routes in the immediate vicinity, circulation is ensured by the construction of temporary service bridges.



Bridge of the Lavraneri

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During the design and construction of the bridge of the Lavraneri (which connects Sacca Fisola to the Giudecca, 70 meters long), Insula chose to build a structure with two parallelepiped pylons, faced with special klinker masonry and protected on the four corners by white limestone blocks, to provide better resistance against the constant aggression of the sea. Seen from the side, the bridge features deep laminated wood beams that serve as both parapet and bearing structure, but in fact the central span, over 30 meters long, relies on a hollow-core duplex steel structure made with laminated wood beams.

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# Insula improves the hygienic and environmental conditions

Insula restores and waterproofs the Venetian sewer system, restoring the historical collectors (the gatoli) and bringing renewed efficiency to the system of waste water purification.



Calle larga Contarina.



Rialto, the new water purification plant in Campo della Pescheria.

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Where the urban and building characteristics make it possible or the drainage typology require it (for example at the fish market in Rialto), more modern sewer systems are built, with pipe collectors that lead to purification plants. Here the waste water undergoes physical and biological treatment before being drained definitively back into the canals. The location and construction of these systems, generally built under the public paving to minimize the impact on the urban context, is far more difficult and complicated than similar construction on the mainland.

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# Insula updates Venice to respond to the needs of a modern city

When a construction site opens, it provides the opportunity to rationalize the water, electrical power, gas and telephone systems, replace older pipes and cables, lay the new optical fiber cable grid. Insula coordinates the companies involved so that they operate together in a single construction site, to cause less inconvenience to the citizens.



Salizada San Pantalon.



Bridge over Rio de la Pietà.

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The demand for technological services in a modern city clashes with the physical and environmental limits of Venice's unique situation. The need for all the piping and cables to coexist underground with the traditional sewer system is one of the greatest challenges among the many involved in the maintenance of the city. One of the most critical nodes in the maintenance of the underground utilities is the passage over the bridges, where rationalization must be paramount because of the exiguity of the available space.

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# Insula maintains the efficiency of the City's real-estate holdings

Insula is responsible for the general and scheduled maintenance of the approximately 5000 housing units owned by the City of Venice.

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Insula keeps the housing owned by the City of Venice efficient thanks to the work of the Housing Maintenance Office. Citizens can turn to the Office of Relations with the Public (URP-*Ufficio Relazioni con il Pubblico*) to report malfunctions or any other needs relative to their housing.



Sant'Anna.



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The maintenance work carried out by Insula on public housing may be divided into three main typologies:

- Widespread maintenance that involves urgencies and repair of malfunctions;
- Scheduled extraordinary maintenance that includes significant interventions on parts of buildings, such as, for example, upgrading or replacing the heating and/or cooling systems, and rebuilding the roof;

Preparing housing units for rental after they have been left vacant due to the termination of a contract and returned to the City Administration, after providing for the maintenance, restoration or renovation required for a new rental. Depending on the conditions, the unit may be subjected to light maintenance (verification of technical systems, replacement of the boiler or painting) or to extraordinary maintenance, restoration or renovation (from the replacement of floor and wall finishes and technical systems to changes in the internal distribution, or renovation with the division of large units into several smaller ones). Ordinary maintenance remains at the expense of the tenant.

Sacca Fisola.

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# Insula is responsible for the maintenance of non-residential public real-estate holdings

Insula is responsible for the maintenance of part of the non-residential buildings owned by the City of Venice.



The Chimisso swimming pool at Sacca Fisola.

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The structures in question are of three typologies:

- Non-residential buildings (decentralized public administration offices, spaces assigned to agencies, associations or others);
- School buildings;
- Sports facilities.

In this case, like for public housing, it is responsible for the general maintenance involving urgent or routine repairs and scheduled, routine or extraordinary maintenance.



Comparetti nursery school in Cannaregio.

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# Insula restores rundown buildings

The restoration can involve publicly-owned individual buildings or complexes of buildings that require renovation.



Pio Loco delle Penitenti.

The point of departure for restoration projects are abandoned buildings at a significant stage of disrepair. Following an initial phase of analysis, the work begins with the consolidation of the foundations and the exposure of the structures. All the technical systems are removed and replaced, as are parts of the floor slabs and roof. The masonry walls are reinforced and new plaster is applied, unless the existing plaster was of historical value. This typology of work can concern small residential buildings or large assisted residential complexes, such as the complex of San Lorenzo, which occupies an area of 4725 square meters. The project was designed to include residences for non-self-sufficient elderly citizens, and homes for the self-sufficient elderly along with a variety of services open to the city. The ground floor features services that are also available to outside users: collective and general services, health service offices, a day care centre. The three upper floors are reserved for rooms and apartments for the residents, organized into nine nuclei.



The former hospital of San Lorenzo.

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# Insula regenerates neighbourhoods and entire urban districts

In the regeneration of deteriorated urban areas Insula is responsible for all the phases in the process: from the feasibility study to the regeneration project, from cleaning up the land to new construction, from the reorganization of the circulation to rebuilding the sewer and underground utilities systems.



Sacca Fisola.



Sacca Fisola.

The regeneration of urban areas must take all the requirements of the context into consideration: the analysis of the ground and any necessary clean-up; the repair or reconstruction of the sewer system (with the construction of water purifiers if necessary); the installation of new utilities grids (water, electric power, gas, telephone, street lighting); the consolidation of existing structures or demolition and reconstruction); refurbishing the urban furniture and public green spaces; repair or construction of the infrastructure necessary for circulation (paving, bridges, etc.). The areas are delivered upon completion to the City, tested and furnished with all the required certifications.

The project to regenerate the complexes of Sacca Fisola and Giudecca 95 involved restoration work and the extraordinary maintenance of the buildings, the repair and upgrade of the sewer system, the landscaping of the outdoor spaces over an area of approximately 100,000 square meters, serving 19 buildings with 380 housing units.

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# Insula modernizes Venetian school buildings

Insula is responsible for the technical and functional upgrade and compliance with the building code for some of the school buildings in the City of Venice.



Palazzo Carminati.



Palazzo Carminati.

The current legislation in the matter of fire protection requires that buildings used for schools be issued a fire prevention certificate. The City of Venice has commissioned Insula to coordinate these activities, the design and the construction of the projects to comply with the building code and the consequent technical and functional modernization of the spaces used for public schools.

So far these projects have involved 15 buildings. The construction has also involved structural parts, especially where structural consolidation and compliance with fire codes was required, and as a result the spaces needed to be redesigned. When Insula returns the buildings to the City, they are certified for structural soundness, fire protection, equipment standards, upgrade of the sewer system with septic tanks and even water purification plants.

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