A symbiotic relationship with water is today an essential element of the personality and beauty of Venice. But at the same time, the bradyseism, was considered highly significant in past centuries. Since its very origins, they made waterlogged mud.

A high tide is considered “normal” when it reaches a level of +110 centimeters, flooding approximately 12% of public circulation routes. The flooding includes Piazza San Marco which is very low (in some points it barely reaches +70 cm).

The erosion caused by the water, the saltiness and low and high tide cycles due to the water level according to the data collected by the altimetric network in 1942. It is the level to which the city intends to raise public paving, where possible.

The restoration of the embankments

The embankments are the main defense system for the city. Their maintenance and repair is essential to protect Venice from flooding. Over time, the embankments have been subject to erosion and damage, requiring regular maintenance. The embankments are made of different materials, including stone and concrete, and are constantly monitored to ensure their stability and effectiveness.

The maintenance of the embankments

The embankments are subject to regular maintenance and repair to ensure their stability and effectiveness. This includes the periodic check for cracks and other damage, as well as the replacement of damaged or worn materials. The maintenance work is carried out using specialized equipment and techniques, such as hydraulic shovels and pumps, to ensure that the embankments remain strong and can withstand the forces of the tide.

The restoration of the embankments

In recent years, the city of Venice has invested a significant amount of money in the restoration of the embankments. This includes the installation of new materials and the strengthening of existing structures. The restoration work is carried out by specialized teams, using the latest techniques and materials to ensure that the embankments remain strong and effective.

The height of the embankments

The height of the embankments is determined by the level of the high tide, which is measured using a datum point. This point is located at the Punta della Salute, and is used as a reference point for all water level measurements in the city of Venice.

The data collected by the first fundamental altimetric network in 1897.

The land that the earth and defending it from the tides; since they did not have groundwa

The foundation walls could be built on this base. The foundation walls could be built on this base. The foundation walls could be built on this base.
Venice: a project for Venice

Preservation and urban maintenance

Utility grids. Constant care is vital to guarantee the city’s future.

Insula: a company for urban maintenance in Venice

Insula spa, the operative arm of the City of Venice for urban maintenance, implements a vast and articulated program of works to restore the paving, smoothing out ruts and uneven areas to guarantee safe circulation and ensure that rainwater or high tides do not leave persistent puddles.

The plan to raise the paving in the city primarily concerns the lowest areas (the ones that are more prone to flooding even when the tide is at its lowest) and on the sewers (to reactivate them) provide an opportunity to restore the paving, smoothing out ruts and uneven areas generally caused by the pumping of sludge and sediments that have accumulated in high-level canals and in the underground utility grids.

The need to intervene on the underground utility grids (to upgrade or reactivate them) is the result of constant use and the passage of time that cause the formation of blockages, both due to the natural wear and tear of the materials and to the contamination of the water, which is constantly transported by the systems for channeling waste water and respecting the standards for “non-toxic” waste.

The canals, the paving, the embankments, the bridges, the underground utility grids, the systems for channeling waste water and the sewers, are all elements that “shape” the city of Venice, that make it alive and navigable.

In V enice, like in every city, the pipes for water and gas and the electrical and telephone grids run under the paving. When a construction site opens, it provides the opportunity for upgrading these utility grids, rationalizing the traffic, installing new, more appropriate materials that are more consistent with the rest of the city.

The underground utility networks are made up of the channels of the sludge and sediment that accumulate over time in the canals which have been used until now.

How can we avoid the decay that blights it?

What problems does such an ancient and unique city face?

How does the “Venetian system” work?

During construction, architectural and environmental constraints are respected, seeking as far as possible to maintain the original appearance of the walls and the level of the entrances to homes and public spaces.

Building the paving

The design of the paving in the city generally concerns the surface layer, which makes the city more pleasant to stroll in, while the subsoil is one of the elements that determine the road’s resistance. During construction, architectural and environmental constraints are respected, seeking as far as possible to maintain the original appearance of the walls and the level of the entrances to homes and public spaces.

New V enetian paving, made out of trachyte quarried in the Colli Euganei, large stones made out of trachyte, maintains the ancient profiles and is adapted and aligned with the appropriate materials that are representative of the rest of the city. For historical buildings that are not particularly high) to build to a level, where possible, of +120 cm.

The vegetation of “Venetian grass” is a kind of turf that grows on the embankments, islands and canals. It is used: an opening in the vault of the underground channel allows special machines to activate a pump that sucks up the sludge into a tank.

The septic tanks, built at the base of the palaces, treat waste waters so that they may flow back into the canals without endangering public health.

The sludge is then conveyed through waterproof hoses into a boat and is used: an opening in the vault on the bridge.

The septic tanks are the masonry tunnels that collect the wastewater that then flows into the canals. The maintenance consists in cleaning out the sediment, in waterproofing them, restoring their walls, correcting their vault, broken alignment of the voussoirs, cracking, loss of consistency. They therefore need constant repair to remain functional. Restoration work on the voussoirs is preceded by thorough diagnostic exploration and ascertainment of the condition of materials and structure. The voussoirs are then consolidated by injecting cement in the cracks to repair them, where necessary, the voussoirs are replaced with newly quarried stone.

Most V enetian bridges are built out of masonry. Over the years they too suffer a certain degree of decay: loss of plaster under the surface of the vault, broken alignment of the voussoirs, cracking, loss of consistency. They therefore need constant repair to remain functional. Restoration work on the voussoirs is preceded by thorough diagnostic exploration and ascertainment of the condition of materials and structure. The voussoirs are then consolidated by injecting cement in the cracks to repair them, where necessary, the voussoirs are replaced with newly quarried stone.

The bridges are made out of cast iron, the original material is preserved as much as possible, but in order to restore and increase their durability, they are also restored with contemporary methods.

The rehabilitation of bridges is preceded by thorough diagnostic exploration and ascertainment of the condition of materials and structure. The voussoirs are then consolidated by injecting cement in the cracks to repair them, where necessary, the voussoirs are replaced with newly quarried stone.

The plan to raise the paving in the city primarily concerns the lowest areas (the ones that are more prone to flooding even when the tide is at its lowest) and on the sewers (to reactivate them) provide an opportunity to restore the paving, smoothing out ruts and uneven areas generally caused by the pumping of sludge and sediments that have accumulated in high-level canals and in the underground utility grids.