

Agency Ile de France Nord

> Planned for the end of 2023 in view of the candidacy for the Olympic Games of 2024, the CDG-Express rail link aims to connect the Gare de l'Est and the Charles-de-Gaulle airport in less than 20 minutes. The 32-kilometer direct link includes 8 km of new tracks from Mitry-Mory.

It is on this section that sonic tests by transparency (standard NF P 94 160-1) were carried out by the personnel of Rincent Ile de France Nord. The logs of 10,000 m long were carried out day and night on the diaphragm wall panels of the underground structure.

Reminding that all the components of this equipment are manufactured by Rincent ND Technologies whether they are the transmit and receive probes. The quality of signal processing is the most sophisticated on the market.

Finally according to the standard, "the verification of the measuring chain and probes is done with a period of not more than six months. The operation consists in studying the repeatability and reproducibility of tests in sites, and on masses or elements that remain stable and accessible over the time. (From the standard)



Agency Ile de France Sud



> The existing building stock evolves in its destination and in its use. Evaluation by calculation is a way of approaching the problem. The integration of past accidental actions and stresses generating structural fatigue are parameters difficult to integrate into this evaluation.

Static loading of existing structures performed by the Ile de France South agency involves heavy loading means as in the example presented below since the load reached 29.5 tons.

The objective was to check the capacity of a floor to withstand an operating surcharge of 600 Kg / m². The placement of the test load on the floor was carried out by means of tanks.



The loading test is carried out in steps, the last being of 24 hours. The deflection is measured vertically to the load, in this case on the lower level, at several points by means of tensioned invar wires, associated with digital comparators accurate at 0.02mm.

The values of the measured deflections are compared to those calculated. The results are satisfactory when the observed deformation is continuous, and less than the calculated admissible deflection.

A measurement is also performed within one hour after unloading, to check the elastic behavior of the tested element. If this measure is not satisfactory additional measurements are made within the maximum period of 24 hours.

In addition to the measured deformations, it should be checked that no new cracks have appeared.

Agency Bretagne

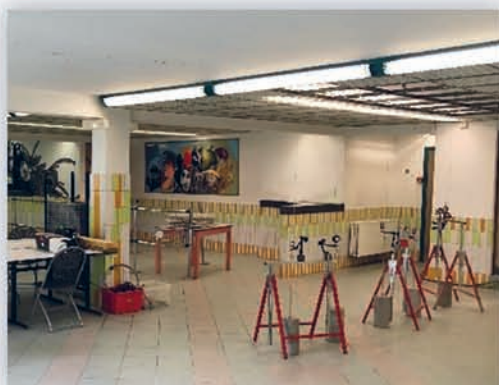


> Rincent Bretagne also carries out this type of floor loading tests, for example on the site of a future museum in the city of Angers. The purpose was to check the floor under a load increase of 55%.

The diagnoses of exterior thermal insulation systems (ETICS) are part of the activity of Rincent Bretagne.

Carried out as part of the renovation of buildings in Saint Malo and Rennes, the aesthetic or mechanical defects are listed.

These diagnoses are indispensable and are part of the preliminary studies needed to define the work to be undertaken.



Agency Midi Pyrénées



> The Midi Pyrénées agency has a diversified activity that reveals its skills both in the area of infrastructure and building.

Regarding that of special foundations, micropiles in particular, static tests and other nondestructive tests made it possible to validate the existing elements before the continuation of works.

The verification of the acroteriums of a hospital building in Toulouse led to auscultation of 210 elements of these structures. The aim was to identify the existing reinforcement using non-destructive tests and then to perform grooves in the concrete structures.

Measurements of free potential or corrosion potential have been made to define the extension of non-visible corroded areas. The operation also included the filling of the grooves.

We remind that the acroterium is an emergent structure consisting of a low wall located at the edge of the roof, in the extension of the facade walls.

Among the non-common tests carried out, there are static tests on glass safety rails of a shopping center of Toulouse to verify their conformity before the opening to the public.

About 200 tensile tests on the anchors of modillions of catenaries support and scaffolding supports were carried out on the Lanespède Viaduct.



Agency Nord Pas de Calais

> The Rincent Nord agency conducted a static test on a safety rail located in the stands of the Bollaert stadium in Lens to check its stability.

These types of tests are usually peculiar and require a design of loading and measurement system adapted to the site.

The load to be validated was close to 1 tone in thrust on the protective metal structure put in place. It was applied in steps at the top of the safety rail. A control procedure defined these steps in both the loading and unloading phases.



The stair steps of the bleachers were used to mobilize the response to the force measured by a calibrated and verified load cell.

Displacements were measured in the upper part of the safety rail in three points by calibrated and verified digital sensors, fixed on tripods,



Test



> The test with the Flat jack concerns the measurement of forces in:

- Rock masses, tunnels
- Concrete structures
- Or masonry structures.

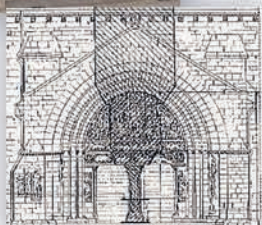
It is a simple test in its principle but which requires to be meticulous when implementing it.

The test is conducted as follows

- placing displacement measuring studs (Photo attached)
- Measurement of the initial gap using a mechanical comparator with a resolution of 0.001 mm
- Sawing the element to be tested using a disk in order to make a groove for the introduction of the flat jack in the form of a disk portion
- Measurement of deformation induced by sawing
- Pressurization in steps and measurement of distances between the studs
- When the distance between studs is that of the initial state, meaning before

opening the groove, the measured pressure is considered to be equivalent to the stress experienced by the tested element, in the direction perpendicular to the groove. In the proposed example, the test was carried out on the trumeau of a portal of a basilica. The pillar on which the test was performed supports the lintel on which the tympanum rests.

The vault of the portal no longer carries charges to its supports and abnormally stresses the central support. The attached sketch shows this situation. The force measured with the flat jack confirms the new distribution of the loads which abnormally stresses the stones which constitute this support.



Rincent BTP Senegal



> Rincent BTP Senegal participates, with a group of consulting firms, in the development of the pavement reinforcement guide in Senegal.

In practice, it is a question of optimizing technically and financially the reinforcement of the Senegalese road network consisting of about 6,000 km of paved roads and 10,500 km of unpaved roads.

The work to be done will have to constitute a reference common to the actors of the field in order to avoid the implementation of various methodologies. This document will take into account the specificity of local materials.

In addition to writing this guide over a period of 20 months, the aim is to foster dialogue between all actors in the road sector.

This concern is widespread in Africa and in particular in the UEMOA countries. West African Economic and Monetary Union

Rincent BTP Rwanda

> Rincent BTP Rwanda is involved in the study and monitoring of the 110 kV Gahanga - Rilima (17.5 Km) and 220 kV Mamba - Rwabusoro - Rilima (61.8 km) power transmission lines.

In addition to conventional field and laboratory tests to identify the nature of soils, resistivity measurements have been performed.

The purpose is to measure the soil resistivity at the towers locations.

These tests make it possible to design the earthing system that protects against the risk of electrocution.

An electrical malfunction can cause a phenomenon of electrification of the supports. The current will flow into the ground through the earthing system. The study of soil resistivity is therefore essential.



International - Equatorial Guinea



> Defects on the seafront of the port of Bata in Equatorial Guinea have been noticed, they are related to scours and cavities creations. Rincent Ports and Rincent ND Technologies performed a diagnosis of positioning and extension of existing cavities and decompression of soils. The ultimate goal was to evaluate the work to be done to secure existing structures.

The auscultations were carried out with a multifrequency radar manufactured by Rincent ND Technologies for the pavements adjoining the waterfront.

A Ramac-type radar was used for the investigation of soils located under the promenade portion of the seafront. These measurements were supplemented by geolocation equipment and video capture.

The use of a light penetrometer made it possible to define in depth the extension of the decompressed zones, and finally an endoscope equipped with a camera completed the diagnostic tools.

To diagnose the volume of soils located in the vertical of the 5-meter-wide promenade, several passages were made, thus sweeping the volume in its entirety, which corresponds to 7 km of linear diagnostic.

For roads parallel to the seafront a passage was made in both directions of traffic at a speed of 30 km / h.



International - Tasmania

> Tasmania is an Australian island located 200 km from the southeast coast of the main island of Australia.

The dam on the Gordon River is a 140-meter high concrete arch. The power plant is 183 meters below the ground and is supplied with water by Gordon Lake by a vertical shaft 137 meters high.

It is inside this plant that Rincent ND Applications carried out non-destructive tests on existing tie rods. It was to give their existing length and tension®.

The method used is an international patent Rincent Laboratories. The analysis of the dynamic stiffness of the vibratory responses makes it possible, in conventional anchoring configurations, such as in rock masses or semi-infinite soils, to calculate the existing forces in the element under test.



Rincent Air

> Rincent Air carries a research and development strategy focused on the following themes:

- The indoor air quality and the means of measurement
- enhance the value of the patented Int'air ® index
- the measurement of vehicle emissions under real traffic conditions.

Buildings, designed to be less and less energy-consuming, are becoming more and more airtight, reducing the removal of pollutants by transfer to the outside.

The conventional analysis techniques are space consuming, expensive, noisy and cannot be deployed in number or in the presence of occupants.

The thesis subject set up by Rincent Air with the University of Lille is entitled: Study of the performance of micro sensors of gas and particles in indoor environments.

The goal of this thesis is to design networks based on miniature sensors relatively affordable, autonomous, and sufficiently accurate and reliable. The ultimate goal is to integrate the sanitary criterion and not only the energy criterion in the qualification of buildings. The current air quality indexes do not meet the global approach requirements, that is why the Int'Air index is innovative.

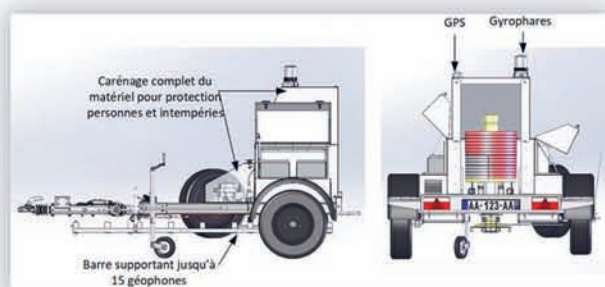
This index can be used in the following contexts:

- Integration in a HQE approach
- Quality label for the customers
- Validation of air treatment systems.
- occurrence at the Workplace of an unhealthy building syndrome

Finally, the measurement of vehicle emissions under real traffic conditions is a major topic in urban areas, in the environmental diagnosis of highways, roads and airports with what it implies in their control, their management and for the modeling of concentrations.



Materials



> After the dynaplaque Type II, Rincent ND Technologies produces an equipment FWD-HWD (Falling Weight Deflectometer and Heavy Weight Deflectometer). This equipment is carried by a chassis respecting the prevailing European standards.

The guide arm of this chassis is foldable to improve the compactness of the equipment during transport.

The design of the equipment is made to facilitate its operation and maintenance. It is the same structure that supports the FWD and the HWD so it is a versatile device that can operate on roads and airport pavements. The operation can be generated by batteries or by a heat engine.

The equipment is equipped with Global Positioning System (GPS) which gives the location of the tests and allows integration of this information directly into the test report.

Rincent ND Technologies offers versatile and compact equipment on demand. The trainings can be done in French, Portuguese, Spanish and also in English since one of the first equipment was sent to England. ndt@rincent.fr



[Link to the video](#)

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