Some 30 plus architects were gathered at the Villa Margherita in Charleston, SC to witness the actual injection of silicone microemulsions into the foundation walls.

The 100-Year anniversary of Charleston’s world renowned Villa Margherita will be celebrated this month with the introduction of new technology in masonry conservation.

Restorations, Inc. is beginning an extensive rehabilitation of the Villa. The firm will use, for the first time in the United States, a German-developed technology, the injection of silicone microemulsions for the prevention of rising damp syndrome.

Rising damp syndrome is a common problem in older buildings, especially in coastal areas such as the Charleston vicinity. It is characterized by water rising from the substrate and being retained in the structural masonry of the building.

Damage to the structure is caused by the rising water and by salts that are left behind when the water recedes or evaporates. A common symptom is efflorescence or “blossoming” on the outer surface of the masonry. If not properly treated, the damage can be severe.

Silicone microemulsions for damp-proofing masonry walls were developed in Munich, Germany, and are distributed by Linton Industries, Inc., U.S.A.

The injection of masonry water repellents has been in use in Europe for more than 20 years, and has proven its effectiveness during that time. Silicone microemulsions are a revolutionary improvement in the process. They are silicone concentrates based on silanes and oligomeric siloxanes. A patented process modifies the formula so that the concentrate, when diluted with water, forms particles small enough (35 nanometers or 1/35 millionth of an inch in diameter) to penetrate the finest capillaries of the building material.

Injection of silicone microemulsions into at-risk masonry provides a long-lasting barrier against rising damp. The process has the added advantage of being environmentally safe.
Silicone microemulsion solution is pumped into holes drilled at regular intervals in the foundation wall.

The new technology will be used by Restorations, Inc. in the foundation walls of the Villa Margherita. The masonry treatment is part of an overall rehabilitation of the mansion. It is the first major work on the building since Hurricane Hugo ravaged Charleston in 1989.

The foundations of the Villa Margherita were so impressive that they generated comment in an 1893 newspaper account of the construction of the house. They were described as “magnificent foundations, grappled deep into Mother Earth, making it as solid as a fort.”

But the foundations, while substantially constructed, were built of soft and porous Charleston grey brick. The local brick is very pleasing aesthetically but is particularly susceptible to rising damp syndrome. The problem was worsened by salt water flooding during Hurricane Hugo.

Restorations, Inc. has a team of masonry experts who will tackle the problem of rising damp syndrome at the Villa Margherita.

The process they will use begins with the preparation of the site. A section of foundation wall ranging from 10 to 40 linear feet will be worked on at one time. Holes will be drilled into the wall at regular intervals. A compressor will then be hooked up to pump the silicone microemulsion solution into the cavities.

The pumping process is known as impulse injection, in which a specific quantity of the material will be pumped every few minutes, for a period of six to eight hours. The entire procedure of treating every foundation wall at the Villa Margherita will take about two weeks.

The silicone microemulsion concentrate is mixed on-site. The use of water in the solution makes the mixture more acceptable environmentally than other waterproofing compounds which are dissolved in alcohol or petroleum based solvents. The water solution has no objectionable odor (a faint vinegar-like smell soon dissipates), is not hazardous to health, is not corrosive and is not flammable.

The injected silicone microemulsions impregnate the masonry. The silicone microemulsion particles are so small that they penetrate the smallest fissures to prevent capillary action. They are particularly effective in penetrating very damp masonry. Since they do not require atmospheric carbon dioxide to be activated, as do some damp-proofing compounds, they are effective in very thick masonry.

Once in place the silicone microemulsions provide an effective barrier against moisture. At the same time, the silicone microemulsions allow the masonry to “breathe” and allow the interchange of carbon dioxide and water vapor.

The material is very stable, so that the treatment will not have to be repeated for at least 50 years, perhaps much longer. That level of stability contrasts with other waterproofing procedures which last no longer than five to 10 years.

The process appears deceptively simple. But if improperly used by untrained workers, the process can be ineffective or perhaps contribute to the damage.

Restorations, Inc. has its own training program to augment the knowledge and skills of its employees. The company was founded in

Guests included
President William Howard Taft,
First Lady Eleanor Roosevelt,
and author Sinclair Lewis,
who is said to have completed his novel, Main Street, there.
1957 by James Benedict of Galion, OH, who wished to improve on the preservation work being performed in historic downtown areas. The company soon gained a statewide reputation for detailed and quality workmanship.

Benedict eventually was joined by four of his sons in the business. After completing hundreds of historic preservation projects in Ohio, the firm began to acquire a national reputation, and was invited to bid on projects in Washington, DC and other parts of the country.

In 1988-89, Restorations, Inc. completed the restoration and stabilization of the Ryman Auditorium, in Nashville, TN, home of the Grand Ole Opry. The project, which included masonry restoration and preservation, drew international acclaim. Valentine W. Smith, III, Director of Development of Opryland USA Inc., commended Restorations, Inc. for the firm's attention to detail and sensitivity to preservation.

Restorations, Inc. is now based in Charleston, where the firm has completed numerous projects for the City of Charleston and The College of Charleston as well as for other institutional and private clients. The long list of historic property projects include the French Huguenot Church, St. Philip's Episcopal Church, Bethel United Methodist Church and the Blacklock House at the College of Charleston.

The Simonds mansion at 4 South Battery, better known as the Villa Margherita, was built in 1892-93 by Andrew Simonds, president of First National Bank and Imperial Fertilizer Company as a present for his wife, Daisy Breaux Simonds.

When built, the house excited notice within Charleston's rather sophisticated architectural milieu, for several features which were innovations in the city at the time. They included the extensive foundations which were unusual in a private residence, the use of Portland cement rather than stucco as an exterior wall facing, and design features such as a “Pompeian court” or atrium, with a pool surrounded by a collonade. Construction cost was about $200,000.

Plans for the Italian Renaissance Revival mansion were drawn by E.P. Dinkelberg, a New York architect, but based on the drawings by the client's wife, a young lady of poetic taste.

While the Simonds family lived there, the villa was the hub of downtown Charleston social events. However, Simonds died in 1902 in a Baltimore hospital following a lingering illness.

When Mrs. Simonds turned the house into a luxury inn ca. 1905, she named it for herself, Margherita being the Italian equivalent of Daisy.

The Villa Margherita operated as an inn until 1953, except for the interregnum of World War II, when it housed first military officers and civilian defense workers, and later merchant seamen. Guests included President William Howard Taft, First Lady Eleanor Roosevelt, and author Sinclair Lewis, who is said to have completed his novel, Main Street, there.

The house returned to private residential use in 1953. Since then the house has lost its domed cupola, the balustrades lining the roof and porte cochere, and the collonade of the Pompeian court. All are slated to be restored as part of the rehabilitation project.

The Villa Margherita is now the home of Mrs. James M. Wilson, one of the first women contractors in South Carolina. She is very concerned about the historic integrity of the Villa Margherita and is enthusiastic about restoring her home to its former grandeur.