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Paint of Protest and Commemoration: A Berlin Wall Section at the United Nations

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Fig. 1. Section of the Berlin Wall now located at the United Nations sculpture garden, 760 United Nations Plaza, Manhattan, New York. East side of the wall section before treatment, 2016. Unless noted otherwise, all images courtesy of EverGreene Architectural Arts.



“The Berlin Wall is perhaps the most visible expression of the moral gulf between free democracy and totalitarian dictatorship . . . As long as there is a wall, barbed wire and orders to shoot, there can be no talk of normality in Germany.” Helmut Kohl, *The Washington Post*, August 14, 1986.

In 2016 the authors were contracted to provide emergency stabilization of a painted section of the Berlin Wall at the United Nations sculpture garden in New York City. This section of the wall is historically significant for its association with the barrier that divided East Berlin and West Berlin during the Cold War. The east and west faces of the wall section present divergent themes. While the east face contains a commemorative mural painted by a professional artist that appears to cover pre-existing graffiti, the west face appears to be covered with multiple layers of graffiti that may have been applied over a period of approximately 15 years (and may have expressed protest or other political messaging), most of which is no longer visible. An intriguing aspect of the wall fragment is the extent to which the content, attribution, and significance represented by most of the paint layers is unknown; they represent a palimpsest of voices each speaking to their own times. The preservation of the more recent graffiti protects layers of potential historical data contained beneath the presenting surface (Fig. 1).

The objective of conservation treatments was the preservation of the existing concrete materials and paint layers. While the project could have benefited from instrumental analysis or characterization of wall and mural materials, this level of investigation was not included in the project scope. Budgetary and scheduling constraints dictated a limited, triage approach to the conservation of the concrete substrate and paint layers under challenging environmental conditions. The work of EverGreene Architectural Arts, which took place between December 2016 and February 2017, included conditions mapping, paint readhesion, and stabilization of the concrete substrate, including rust conversion and fills to protect the reinforcing steel from further degradation. Neither general cleaning nor application of protective coatings was within the scope. However, localized removal of biological growth was included.

The Berlin Wall

Following the end of World War II, the capital city of Berlin, Germany, was divided between the Soviet-controlled German Democratic Republic (GDR) to the east and the Allied-occupied West Germany.

Previously an area of relatively free movement between East and West Germany (whose inner border was closed in 1952), by 1960 Berlin was recognized by the GDR as the critical point of mass emigration, particularly of young professionals, representing a “brain drain” that threatened East Germany’s economic and political success. At midnight on August 13, 1961, the border between East and West Germany in Berlin was formally closed. The East German police and army destroyed streets leading to border crossings and began construction of concrete-block walls and wire fencing in East Berlin to prevent defectors from fleeing to the west. The Berlin Wall, as it came to be known, encircled West Berlin (as the entire city of Berlin was located within Soviet-controlled East Germany) and stretched for 91 miles.

Over the years, the wall construction was improved, and associated areas were expanded, fortified, and guarded to prevent East Germans from escaping. Nevertheless, defections continued, and East German troops were authorized to shoot those attempting to cross the border without authorization. Approximately 5,000 people succeeded in defecting, with at least 140 dying in the attempt.

The Berlin Wall was condemned by political leaders in the West, and it became a potent symbol of Soviet repression during the Cold War. After new wall sections of reinforced concrete were erected in 1975, these “fourth-generation” walls (preceded by iterations of concrete blocks, wire fence, and concrete barriers) were marked on the west side with graffiti protesting the East German regime. Some acts of graffiti were tolerated, while others were covered or cleaned off by East German workers performing maintenance. The Berlin Wall remained intact until November 9, 1989. Its demise followed a series of protests that were brought on by political developments signaling the collapse of the Soviet Union’s control of the Eastern Bloc. Immediately, joyful Germans broke down sections of the wall in celebration, carrying off fragments as souvenirs. By 1990 nearly all wall components were dismantled, with only isolated areas remaining standing.

Kani Alavi and the Wall Section at the United Nations

After the fall of the Berlin Wall, Iranian-born artist Kani Alavi worked with other German artists including Jorg Weber to preserve a portion of the wall. Alavi had moved to West Germany in 1980, and his studio overlooked Berlin’s Checkpoint Charlie border crossing. Alavi was a firsthand witness to the cruelty and division that the wall represented. The artists’ organization sought to reimagine a segment along the Spree River as an open-air gallery and monument to the experience of East Germans and others who sought freedom.¹ This wall section, known as

East Side Gallery, contains the work of 118 artists from 20 countries. The artists painted new works on the east-facing side of the wall.²

Today, East Side Gallery is a popular destination for visitors in a desirable district of Berlin. Despite periodic restoration and repair efforts, the paintings continue to face threats from weathering and graffiti tagging, as well as real-estate development pressures on the site where they stand.

In 2002 a portion of the wall painted by Kani Alavi was donated to the United Nations sculpture garden in New York City. The wall section consists of three structurally distinct panels of steel-reinforced concrete, with each panel measuring approximately 4 feet wide by 12 feet high. The aggregate in the concrete varies widely, suggesting that it is ungraded, with the binder most likely being Portland cement. The panels were precast units with grooves in each end and with what appears to be mortar or concrete placed into the groove for additional stability. The three panels are capped with a three-quarter-round hollow cement cylinder, beneath which is exposed rebar set into a groove at the top of each section (Fig. 2).

Alavi’s painting, entitled “Trophy of Civil Rights,” faces east just as it did in Berlin. It was painted before its arrival in the United States as a part of the East Side Gallery. The graffiti on the west-facing side is by numerous artists and is thought to date from 1989–1990, while the wall still divided Germany. Alavi’s painting depicts two people embracing over the top of the wall, with the words “Trophy of Civil Rights” inscribed on the round wall cap above the image. Previous graffiti campaigns, layered and partially revealing one another, are on the right side of the panel. The design of the west side features a blue background with raised stylized orange fists, a heart with a face on the upper right, and in the lower left, a caution sign. The words “Safe the Truth of” are painted in the upper left corner and across the wall cap. As on the east side, the west side had several generations of graffiti



Fig. 2. West side of the wall section before treatment, 2016.

painted in campaigns that overlap. The identities of those who left their marks on the wall are largely unknown.

2016 Project Scope

The wall section was reportedly in good condition when it arrived in the United States in 2002.³ By 2008, however, an assessment carried out by an art conservator indicated that the paint

and the concrete substrate were both deteriorating. Changes to landscaping details carried out in the summer and fall of 2016 resulted in the removal of shrubbery that had provided shelter from winds coming off the nearby East River. In addition, site grading was altered, resulting in ponding and accumulation of water at the base of the wall, which expedited the deterioration

of the rebar, concrete, and paint (Figs. 3 and 4).

The first step of the 2016 project was to perform a detailed conditions map, which would be used to define areas that needed emergency stabilization and inform any treatments. The wall section was examined visually, and the concrete was sounded by hand to detect hidden delamination, in addition to visible spalls and paint detachment. The extent of rust jacking in rebar segments was also evaluated as was the stability of the concrete at cracks and spalls. Annotated photographs from the survey became the basis for determining the types, locations, and number of treatments required.⁴

It became apparent through the mapping process that the quality of construction of the original recast units played a part in the degradation of the substrate. The rebar was insufficiently embedded in the concrete, leaving it vulnerable to moisture intrusion and corrosion. As the concrete carbonated over time, the increasingly acidic environment, coupled with 15 years of facing a brackish river and frequent moisture and thermal cycling, had caused the rebar to oxidize and expand. This in turn caused the concrete to spall in multiple areas, compromising the paint layers. In some areas, the paint acted as a bandage to hold the spall in place and prevent the concrete from falling to the ground.

The paint that was used to create the artwork was most likely household paint, much of which may not have been manufactured for outdoor use and thus was not performing well in the exterior environment. Exposure to sunlight had caused the paint to become brittle and shrink over time, which was evident in the color fading and craquelure across the surface. Further paint delamination was characterized by tenting and peeling layers. There also appeared to be a lack of adhesion in between the graffiti campaigns where different types of paint were used and where dirt layers prevented proper paint adhesion. Chips of paint that had fallen off were collected along the bottom edge



Fig. 3. Paint that had detached and fallen to the ground before treatment, 2016.



Fig. 4. Flooding at the foot of the wall section before treatment, one of the reasons for the substrate degradation and rapid paint loss, 2016.

of both the east and west sides. Paint types were visually characterized; they included aerosol spray paint, acrylic latex paint, enamel paints, metallic paints, and artists' acrylic paints. Media and pigment analysis were outside the scope of this project and were not performed.

Due to the expedited schedule required by the client, treatment testing was largely confined to evaluating paint solubility. The most expedient method of testing was to utilize paint samples that had detached and fallen from the mural onto the ground. Solvent testing was performed on each of the presenting paint colors for which samples were available. This testing was completed to ensure that the solvents used in the consolidants would not dissolve the paint. Acrylic and acrylic-latex paints are sensitive to many solvents, including alcohols, aromatic hydrocarbons, and ketones (like acetone). Samples were procured from the fallen paint chips at the base of the panels, with representative examples of each paint color submitted to solvent testing. Ethanol, mineral spirits, filtered water, and acetone were selected to test solubility, as those are the most common solvents used with paint consolidants. Solvent testing indicated that every color reacted to acetone, and all colors but the white paint exhibited sensitivity to ethanol (Fig. 5).

The solubility of the mural paint also affected the selection of potential paint re-adhesion treatments. For polymer adhesives to be stable in an outdoor environment, they must have a higher glass transition temperature (T_g), which represents the temperature at which the dried adhesive becomes soft or rubbery (as opposed to the glassy or crystalline state it has in cooler temperatures). Adhesives that have a higher T_g , such as synthetic resins Paraloid B48-N and B-72, require dissolution in more reactive solvents. The paints' sensitivity to those solvents limited the selection of adhesives. The best candidates were acrylic dispersion adhesives with thermoplastic characteristics, requiring



Fig. 5. Solvent testing of the various types of paint to determine the best adhesive, 2016.

light pressure with a tacking iron or heated spatula to properly set paint flakes back into contact with the substrate. This presented challenges where the acrylic paint had become brittle from UV light damage. Some portions of the paint had delaminated and curled away from the substrate, creating a ribbon effect. These ribbons were extremely deformed and delicate.

Paint conditions were also exacerbated by the deterioration of the concrete substrate. The corrosion of steel rebar created incipient spalls in the concrete surface, where concrete fragments were pushed outward and created open cracks in the paint layers. Due to the expansion of the steel, the projecting spalls could not be set back into plane. The project scope did not provide for localized replacement and/or patching of losses and spalls in concrete; therefore, the substrate was stabilized by treating the rusted steel and patching the voids, inhibiting further deterioration.

Because the treatments were carried out during the winter months, it was necessary to build a tent over the wall section and heat the space in order to provide an appropriate environment for the application and curing of conservation materials. During the project period, exterior temperatures fluctuated between 20 and 35 degrees Fahrenheit. The space was slowly

warmed to 50 degrees Fahrenheit to minimize temperature and moisture-driven dimensional changes that would exacerbate existing cracking and spalling.

The first portion of the treatment focused on the removal of deposits of biological growth such as algae, moss, and lichen that had formed along the base of the wall units, concentrating in the crease between the vertical sections and the horizontal base. Recurring flooding of the site contributed to increased deposits of biological growth and caused damage to the concrete wall and mural paint stemming from wet/dry and freeze/thaw cycling. The flooded area and concrete base were slowly dried out by directing a heated fan at the base. Daily moisture monitoring was completed using a pin moisture meter. Diluted D/2 Biological Solution was used to remove the biological growth.

Delaminated paint was re-adhered to the surface using both Plextol B500, which has a Tg of 9 degrees Celsius, and Lascaux 498 HV, with a Tg of 6 degrees Celsius. These acrylic dispersions were selected because they did not harm the paint media and could adhere the paint quickly with the use of a tacking iron. However, the low glass transition temperature was a concern for the application in an exterior environment because the adhesive could become tacky in localized areas of heat (particularly when the sun shines directly on the darker and metallic paints) and could shrink during freezing cycles. It was communicated to the client that the treatments would have limited longevity (requiring monitoring and re-treatment), and product information was submitted indicating that the selected materials were not intended for outdoor use.

One visual drawback of the selected adhesives relates to the sheen of the material. As acrylic paints degrade over time, particularly in the presence of UV light, the polymer chains become brittle, and the film begins to shrink, causing cracking and delamination. The acrylic media no longer functions as a pigment

binder, and the pigments become powdered on the surface. This situation creates a faded and dusty appearance. Any adhesive that accidentally dripped onto the paint layer would act as a consolidant, re-saturating the loose powdered pigments and causing a glossy surface on top of a matte layer. This created challenges, as reducing the gloss caused by adhesive overrun requires solvent removal, which also affects the original paint layer. To prevent this, the more viscous Lascaux 498 was used, as it could be applied with precision with size 0 to 000 watercolor brushes.

The reattachment of the brittle and curled ribbons of paint presented additional challenges. Once the adhesive was applied to the back of the ribbon (some ribbons had to be applied in small sections), heat was used to soften the deformed ribbons to make them sufficiently malleable to be reattached to the substrate. Pressing with a tacking iron was not feasible, as it would have put too much pressure on the paint, as well as any surrounding delamination, causing more damage and paint loss. A heat gun, used at its lowest setting, was used to soften the paint so that it could be reshaped and adhered. The heat gun was held approximately 12 to 15 inches from the area of delamination and waved slowly over the paint until it was malleable enough to be slowly and gently reshaped. The process had to be started and stopped to allow time for the paint to cool. Micro-spatulas with a silicon release paper were used to reset the paint; it was noted that Teflon-coated micro-spatulas left black marks on the surface (Fig. 6).

Once the paint consolidation was complete, corrosion was removed from exposed rebar with a steel brush. A corrosion converter solution was applied by brush in two to three rounds to slow ongoing corrosion of the steel. The selected material was Rust-Oleum Rust Reformer 8 ounce liquid conversion treatment. Spalls were then filled with a pozzolanic hydraulic lime-based injection grout, set back



Fig. 6. Paint readhesion on the west side of the wall section, 2017.

into plane as much as the expanded rebar would allow, and left to cure. The selected grout was Void Span 600 Series PHLC70, formulated for small areas of separation and dutchman adhesion (Figs. 7 and 8).

Conclusion

Though EverGreene approached this project as emergency stabilization or triage due to the budget, environmental limitations, and scheduling constraints, a long-term, more measured approach would include monitoring, assessment, and possible re-configuration of the base or pad under the wall section. The project did not represent an in-depth, comprehensive treatment; nevertheless, the historic artifact was stabilized temporarily, slowing down the rate of deterioration and saving a significant portion of historic paint and imagery. The range of incompatible materials, such as acrylic and interior paints, will always pose a challenge to the longevity



Fig. 7. East side of the wall section after treatment. Courtesy of Michelle Young, Untapped Cities, untappedcities.com.



Fig. 8. West side of the wall section after treatment. Courtesy of Michelle Young, Untapped Cities, untappedcities.com.



Fig. 9. East side of the wall section showing the continued efficacy of the treatments, 2023. Courtesy of Gillian Randell.

of the piece and will require continued monitoring and maintenance (Figs. 9 and 10).

The layers of graffiti on this Berlin Wall fragment, whether visible to the eye or obscured beneath graffiti applied over time, are an important historical record of struggle, conflict, and yearning for freedom in a divided nation. Alavi's mural represents the hope provided by the reunification of the people of Germany, an optimistic vision for the future that is amplified by the artifact's setting at the United Nations.

Brooke Young Russell is a senior conservator at EverGreene Architectural Arts, specializing in the investigation and conservation of decorative surfaces, including paint microscopy, paint reveals, paint and gilding treatments, and the conservation of murals and paintings. A Professional Associate of AIC, she chairs its Architectural Specialty Group and works with APT's Technical Committee for Materials. She can be reached at brussell@evergreene.com.

Gillian Randell is a Brooklyn-based art conservator in private practice. She received her master's degree in conservation in England. For the past 30 years, she has specialized in easel paintings and murals. Many of her projects involve large-scale paintings in historic theaters, churches, courthouses, and museums. She can be reached at gillianrandell@aol.com.



Fig. 10. West side of the wall section showing the continued efficacy of the treatments, 2023. Courtesy of Gillian Randell.

Mary Slater has over 25 years of experience in the preservation of cultural resources, including historic buildings and architectural sites. She is a senior conservator at EverGreene Architectural Arts, where she is responsible for carrying out assessments, material investigations, and conservation treatments for historic architectural materials and works of art. She can be reached at m Slater@evergreene.com.

Notes

1. Ryan Prior, "As the Berlin Wall was falling, one artist concocted a plan to turn it into the world's longest outdoor gallery," CNN, Nov. 9, 2019.
2. visitberlin.de/en/east-side-gallery, accessed Oct. 30, 2022. stiftung-berliner-mauer.de/en/east-side-gallery, accessed Oct. 30, 2022.
3. The earlier condition details were not available.
4. The glossary was determined by Gillian Randell, lead paintings conservator. Terms were not unique; they were drawn from a specific standardized glossary.

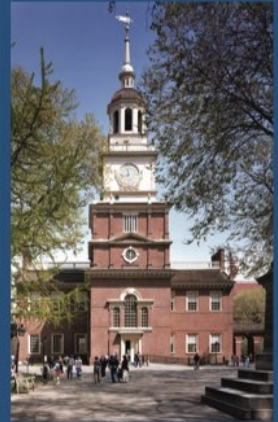


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