



## Virtuelle Mauer/ReConstructing the Wall

**IBM Innovation Award winner at the 2009 Boston Cyberarts Festival!**

[www.virtuelle-mauer-berlin.de](http://www.virtuelle-mauer-berlin.de)

EXHIBITION CONCEPT 2010

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For decades the **Berlin Wall** was a symbol of repression and of the division of Germany, Europe and indeed the entire world into two politically opposing systems. For the East German government, that built the Wall to prevent its own citizens from fleeing to the West, it was the “anti-fascist protective barrier.” For the West German government, that refused to officially recognize its existence, it was an “unlawful” consequence of the East-West conflicts of the Cold War.

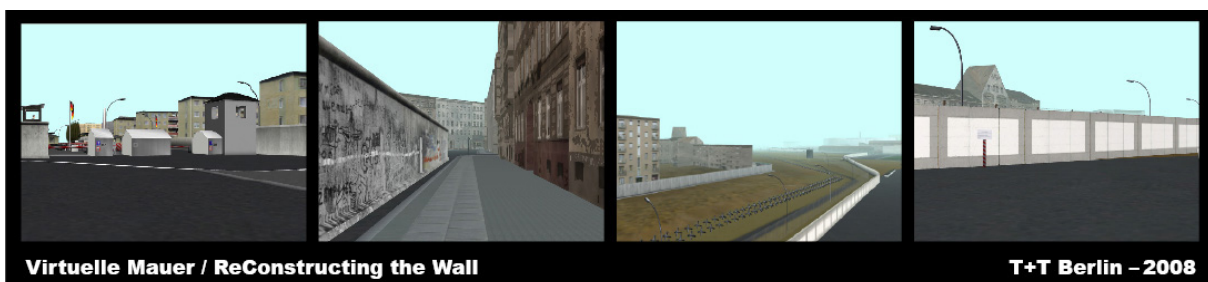
Only a year after the fall of the Wall in November 1989, almost all traces of the Wall had been removed. As the premiere symbol of the division of the world into two opposing political systems, people in both East and West Berlin wanted to eliminate the Wall as quickly as possible. For those who did not experience the Wall themselves, the effects of this structure on Berlin’s urban space, and on the political and sociological divisions engendered by this “Wall in people heads,” are not comprehensible today.

In the virtual reality artwork **Virtuelle Mauer/ReConstructing the Wall** the artist team **T+T** has rebuilt part of this historically significant structure in a virtual space, depicting its physical, political and social effects on life “in the shadow of the Wall.” The principles of **T+T** are: **Tamiko Thiel**, an American VR (virtual reality) artist, internationally known for her use of VR technology to create socially critical artworks; and **Teresa Reuter**, a Berlin architect and 3D artist with metroGap–Association for Urban Theory and Practice, whose work is strongly influenced by years of experience living with the Wall and dealing with the urban development of Berlin since the fall of the Wall.

### The VR artwork

**Virtuelle Mauer/ReConstructing the Wall** is a virtual reality (VR) artwork, an interactive 3D computer graphic installation that enables users to experience a section of the Berlin Wall in its former complexity. The VR artwork allows this now vanished structure to speak of the emotions and conflicts it engendered and represented in the past. As in a 3D computer game, users can wander along the Wall – not in the role of the omnipotent border guard, gun in hand, but in the role of a normal Berlin resident who must live day in and day out with the presence of the Wall.

The site for our “virtual stage” is a **one kilometer (0.56 mile)** stretch of the Wall between the **West Berlin district Kreuzberg and the East Berlin district Mitte**. Archival sounds and images – including material from the former East German Secret Police (Stasi) – are woven into the virtual world, creating a dramatic encounter that involves the user as the protagonist in a surrealist dream. Going far beyond a documentary reconstruction, users’ actions determine the sequence of scenes they encounter. Time travel, animations & simulations involve them in events spanning the 1960s to the present time, conveying a sense of what it was like to live “in the shadow of the Wall.”



Screenshots from the virtual world

### Project partners

The project was developed in close cooperation and with the support of the **Berlin Senate Chancellery for Cultural Affairs** as an integral part of its **Memorial Concept for the Berlin Wall**. In 2009 it won the Grand Prize of the **IBM Innovation Awards** at the **Boston Cyberarts Festival**. **Further partners, supporters and sponsors of the project include:** Primary financial sponsor Hauptstadtkulturfonds (Capital City Cultural Fund of Berlin), Berlin Wall Documentation Center, Museum for Communication in Berlin, Federal Republic of Germany State Department, Goethe-Institut Boston, Dr. John Czaplicka (Harvard University Center for European Studies), MIT CAVS, metroGap e.V. – Association for Urban Theory and Practice, Bitmanagement Systems – a leading provider of interactive 3D technology.

## Exhibition concept

The VR installation **Virtuelle Mauer/ReConstructing the Wall** is an interactive, kinesthetic and immersive encounter that will give users a sense of how it was to live „in the shadow of the Wall.“ The virtual artwork is installed on the hard drive of a Windows PC. The image of the virtual world is projected life-sized via a video projector onto a 3m x 5m (~9'x15') screen. Sound from the virtual world is heard via 2 stereo PC speakers to the right and left of the screen. Users move through the interactive 3D world via a simple joystick. (See Appendix for detailed technical specifications.)



**Virtuelle Mauer/ReConstructing the Wall  
interactive 3D installation**  
© T+T Tamiko Thiel & Teresa Reuter, 2008

## Background information, panels, project book

In addition to the immersive experience of the life-size installation itself, we wish to provide users with explanatory background information on the political context, the social differences between East and West Berlin and the urban situation in our project area.

To this end we have produced various informational materials for the project, some of which could be printed on location at the venue, others of which must be shipped from Berlin.

- **1-page flyer:** Gives users a sense of what can be found in the space, and the historic context of the material depicted in the piece, plus a website address for further information.
- **Information panels:** Should be viewable in a well-lit space before entering the darkened installation. Maps show the historical situation of Cold War Germany and Berlin, screenshots explain the complex construction of the Death Strip over the decades, and a chronology gives an overview of the historic and political events of that time. There are 8 panels in DIN A2 format (42x59.4cm or 18" x 24"), available in either German or English.
- **Project book:** A more detailed version of the material in the information panels is **available for sale** as a project book (**in an English version and a German version**) which also can be laid out for viewing by visitors to the installation. A schematic details the construction and increasing fortification of the border structures over the decades. Archival texts, photos, panoramas, aerial photos and maps, taken from different eras – post-WW2 – Cold War – after the fall of the Wall – show users how the Wall affected the urban landscape in this part of Berlin.

## Selected exhibitions, 2008 – 2010

- 2010** Solo exhibit, Industrial Design Center of the **Indian Institute of Technology**, in cooperation with the **Goethe-Institut Mumbai**, Mumbai (Bombay), India.
- Solo exhibit, **Goethe-Institut Bangalore**, Bangalore, India.
- Solo exhibit, **Goethe-Institut Sri Lanka**, Colombo, Sri Lanka.
- 2009** Solo exhibit, **Goethe-Institut New Delhi**, New Delhi, India.
- Solo exhibit, **Goethe-Institut Los Angeles**, Los Angeles, CA, USA.
- Solo exhibit, **American University Museum** in cooperation with the **Goethe-Institut Washington**, Washington D.C., USA. Opening remarks: **German Ambassador Klaus Scharioth**.
- Special event, **John F. Kennedy School of Government, Harvard University**, in cooperation with the **Goethe-Institut Boston**. Speakers: German Consul Friedrich Loehr and Kennedy School Professor Steven Walt
- "FALLMAUERFALL | 61-89-09," Ephraim-Palais, **Berlin City Museum**, Berlin, Germany
- "FEEDFORWARD: Angel of History," **LABoral Centro de Arte**, Gijon, Spain.
- "Reconstructed Zone," **Kunstverein Wolfsburg**, Wolfsburg, Germany
- Solo exhibit, **Chancellor Willy-Brandt-Haus**, Lubeck, Germany
- Solo exhibit, **Goethe-Institut Boston** as part of the **Boston Cyberarts Festival**, Boston USA. **Grand Prize, IBM Innovation Awards** for artistic creation in art and technology.
- 2008** Solo exhibit and US premiere, **911 Media Arts Center**, Seattle, WA, USA.
- Solo exhibit and world premiere, **Museum for Communication**, Berlin, Germany

## Selected lectures by the artist team T+T, 2008 – 2010

- 2009** "The Virtual Wall", lecture/demo by Teresa Reuter as part of "Old and New Borders in Europe: International and Interdisciplinary Summer School", **Centre Marc Bloch**, Berlin, Germany
- "Erinnerungsorte: Denkmal und Gedenken" ("Places of Remembrance: Memorials and Remembrance"), Department of Historic Preservation and Design, **Technical University Dresden**, Dresden, Germany.
- 2005** "Virtual Reality Art Environments as Learning Resources," Interfiction XII "Learning from/with/in Media Cultures," **Kassel Documentary Film and Video Festival**, Kassel, Germany.
- "Virtual Memorials" roundtable discussion, Goethe-Institut Boston, as part of the **Boston Cyberarts Festival**, Boston, MA, USA.
- 2004** "ReConstructing the Berlin Wall: The virtual experience of an urban fact and symbol," **Harvard University Center for European Studies**, Cambridge, MA, USA.

## Artist team T+T – Biographies

The artist team T+T was awarded a major grant from the **Hauptstadtkulturfonds** (Berlin Capital City Cultural Funds) in 2007 to produce "Virtuelle Mauer/ReConstructing the Wall." At the **2009 Boston Cyberarts Festival**, T+T was awarded the **IBM Innovation Award** for artistic creation in art and technology for this artwork.

### Tamiko Thiel

Tamiko Thiel has a B.S. in Product Design Engineering from Stanford University (1979), an M.S. in Mechanical Engineering from MIT (1983) and a Diploma of Arts from the Academy of Fine Arts in Munich (1991). She has been creating artworks that cross the borders between art and technology since 1983, and exhibits internationally in venues such as the Fondazione Querini Stampalia in Venice, International Center for Photography in New York, Tokyo Metropolitan Museum of Photography, ICA/London, and at media art festivals such as Siggraph and ISEA. Since 1994 she has been concentrating on developing the interactive and narrative capabilities of virtual reality as a vehicle for cultural and socio-political content.

### Teaching, Fellowships:

Thiel has taught and lectured internationally at universities such as Carnegie Mellon University and the MIT Media Lab in the USA, and the Bauhaus University in Weimar, Germany. In 2004 she was a research fellow at the Center for Advanced Visual Studies at MIT, where she began the research for "Virtuelle Mauer / ReConstructing the Wall."

### Selected projects in virtual reality:

- "The Travels of Mariko Horo," 2006, a reverse Marco Polo journey to the exotic Occident
- "Geometries of Power," 2002, on power relationships between terrorists and politicians
- "Beyond Manzanar," 2000, on scapegoating of minorities in times of crisis (with Zara Houshmand)
- "Starbright World," 1996, a virtual playspace for seriously ill children created in cooperation with Starbright Foundation chairman, film director Steven Spielberg.

**Website:** <http://www.mission-base.com/tamiko/>

### Teresa Reuter

Teresa Reuter graduated in 1994 with a degree in architecture from the Technical University Berlin. She was a co-founder of metroGap e.V. – Association for Urban Theory and Practice – and was chair of the association until 2002. In 2003 she founded an office for architecture, visualization and graphics. Since 1997 she has been involved in numerous "art actions," artistic interventions in the public domain on themes of surveillance and privatization of public spaces.

### Action art in public spaces:

- Thematic city map I: "der gefährliche Stadtplan" ("The Dangerous City Map"), 1997.
- Thematic city map II: "shoppen – aber sicher" ("shopping - to be sure"), 1998.
- Potsdamer Platz: "Sie verlassen den öffentlichen Raum" ("You are leaving the public sector"), 1998. Info-Gerüst - temporary info-scaffold installation on the Kosovo War 1999.
- metroZone – Video surveillance of public squares, 2000.
- "wachsende Gerüstskulptur" (accretive scaffolding sculpture), 2001.

### Exhibits:

- Stadtpassage – ("City Passage") scaffolding sculpture in front of La Fabrik (2001),
- metroClip – video project for the exhibition "hybridvideotracks" on control, surveillance and biometrics, NGbK, 2001.
- "Scaffold sculptures from 1995-05," exhibition at IBA Lausitz, 2005

### Lectures:

- Babylonia: lecture series on Berlin „Metropolenrisse“ ("Ruptures in the Metropolis"), 1996.
- metroZone: Event on video surveillance in public spaces, 2000.
- Lecturer at the College of Arts Weissensee/Berlin in the interdisciplinary seminar „Fremdkörper-Hygiene-Raum" (Foreign Body-Hygiene-Space), 2003/2004.
- Lecture on an audio-spatial scaffolding installation for the projekt „Terraphonien," IBA Lausitz, 2004. Lectures for project seminars "Parallel Worlds" and "Break" at the Lina Morgenstern School, 2005-6.

**Website:** <http://www.architektur-visualisierung-grafik.de/>

Appendix: Virtual Reality Installation Technical Requirements

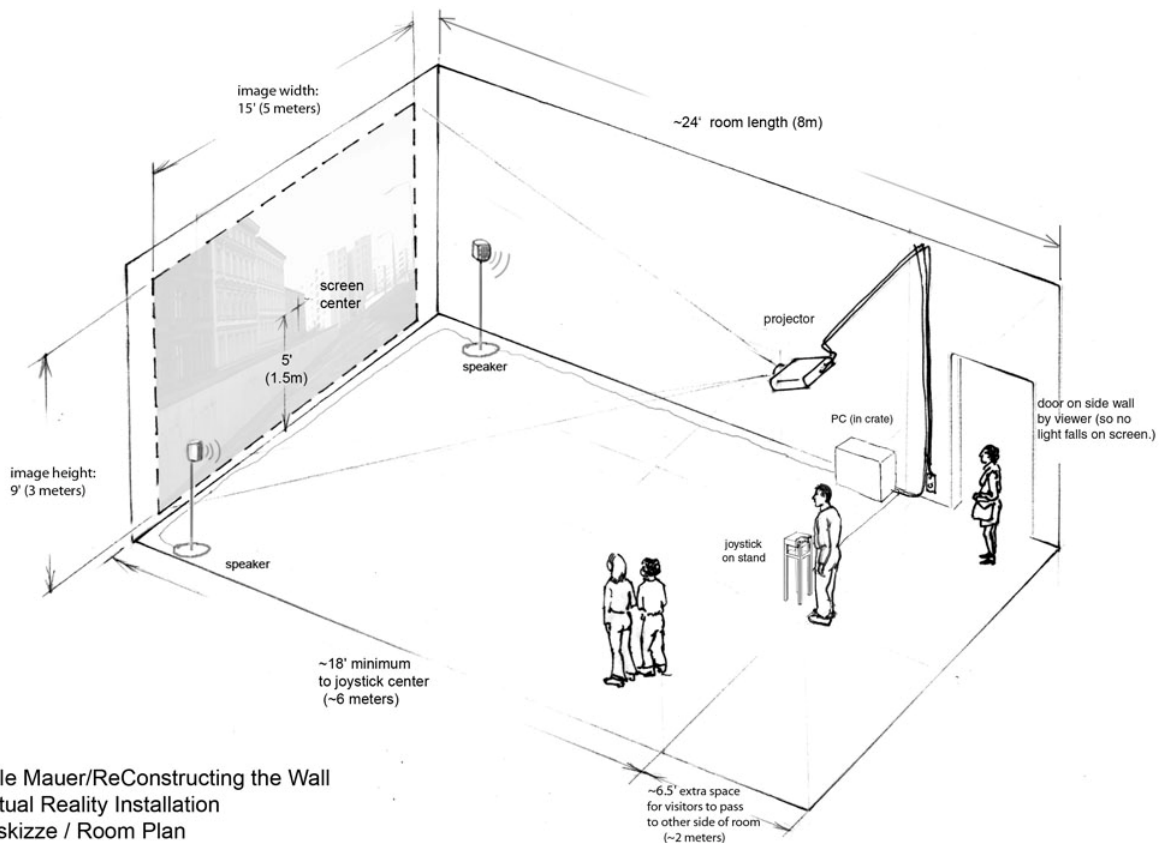
Room, Screen and Joystick

**Installation room:**

- **Room dimensions:** min. 3.5m high x 6m wide x 8m deep (10' high x 18' wide x 24' deep).
- Room should be **dark** and **completely enclosed on all 6 sides** (windows, skylights blacked-out e.g. with opaque film) – no light should come in between walls and ceiling! If needed, a weak spot should shine on the map attached to the joystick box.
- **Entrance** on rear side of space, so no light falls on screen.
- **No other sources of sound nearby.** (Soundtrack has large dynamic range. Quiet sections should be well audible and loud sections should not conflict with nearby artworks.)
- **Stereo loudspeakers** should be on stands or attached to the wall to right and left of screen.
- If necessary to **improve the acoustics**, please baffle walls, e.g. with theater masking fabric.

**Screen or projection surface:**

- **Image size:** ideally 3m high by 5m wide (9' x15'), min. 3m x 4m ( 9' x 12')
- **Image position:** lower edge of screen should be within 10cm (4") of floor.
- A white wall can function as a **projection surface**, but must be smooth, with an even tone and free of defects (holes, projecting objects, cracks and lines, blemishes, electrical sockets, etc.)
- If it is necessary to use a **screen**, it should be so constructed such that the lower edge can be within 10cm (4") of the floor.



Virtuelle Mauer/ReConstructing the Wall  
 3D Virtual Reality Installation  
 Raumskizze / Room Plan

**Space for information panels and/or project book display:**

Information panels and/or the project book need to be in a separate, well-lit space, ideally immediately before the entrance to the installation room. The project book needs a podium or small display table. The information panels are 8 panels sized at DIN A2 (42cm x 59.4cm or 18" x 24").

**Joystick, joystick box and tripod:**

- The **navigation console** is a commercially available USB joystick that has been modified to our specifications and mounted on a wooden board. It is enclosed in a custom-made aluminum box and the „stick“ is a simple rod that fits in all sizes of hands.
- This **joystick box** is then fixed to a wooden tripod that should be adjust so the lower edge of the joystick box is a height of 90 cm ( 35" ) from the floor.
- For stability, the **tripod** legs must be screwed to the floor, or if this is not possible, to a wooden **floorboard** roughly 1.2m x 1.2m ( 4' x 4' ).
- There should be a non-slip carpet rug underneath the **floorboard**, or it should be fixed to the floor with double-stick mounting tape. It should be painted a color to blend in with the floor.

Estimated material costs for hardware, software and fixtures

The following costs are estimates and will vary depending on the local circumstances, labor rates, prices, etc.

**1. Video projector** (must have VGA or DV-I computer input):

- Image resolution ideally **1280x768**, min. **1024x768**
- **Image size: ideally 3m high by 5m wide (9' x15')**, min. 3m x 4m ( 9' x 12')
- **3500 ANSI lumens**, high contrast (e.g. 2000:1)
- **Keystone** distortion compensation
- **Ceiling mountable** (or light enough to sit on shelf suspended from ceiling) such that the projector can be tipped as necessary to bring image close to floor.
- **Size:** approx. 10 cm x 30 cm x 25 cm (4" x 12" x 10")
- **Weight :** approx. 3.5 kg (~ 8 lbs.)

**2. PC:**

- **Operating system: WindowsXP/Service Pack 3**
- **Processor:** Intel Core 2 Duo 2.6 gigahertz or better
- **System RAM:** 2 gigabytes
- **Graphics card:** (requires PCI-E bus) **Nvidia GTS 250 1GB**
- **Power supply: min 500 W**
- **Sound card:** (PCI interface) **M-Audio Delta Audiophile 2496** or equivalent
- Mouse and keyboard (for booting system)
- DVD drive: for loading software
- USB-2: for joystick cable
- **Size:** ~ 22 cm x 45 cm x 47 cm (~ 9" x 18" x 18.5")
- **Weight:** ~ 4 Kg (9 lbs.)

### 3. Stereo loudspeakers (active):

- Ideal: **Genelec 8030A** (plus subwoofer, if possible).  
**See this webpage for specs: <http://www.genelec.com/8030a/specs/>**
- Cheaper alternative (but not as good, sturdy or durable, and VERY heavy): **Phonic P6A**.
- The loudspeakers should be **40W (minimum 20W)** and be capable of handling a large dynamic range, ~ **55Hz - 21kHz**.
- The loudspeakers should be **mounted on the walls or on stands to the right and left of the screen or projection surface**, approximately a **third of the way from the screen to the joystick**. If there are other sound sources in the exhibition, it might be necessary to mount them much closer to the joystick, so that the user can hear well even if the sound must be low.
- Size (Genelec): loudspeakers: 25 cm x 15 cm x 20 cm (10" x 6" x 8")
- Weight (Genelec):: 2 x 6 Kg (2 x 13.2 lbs.)
- Size (Phonic): loudspeakers: 34 cm x 22 cm x 23.5 cm (13.4" x 8.7" x 9.25")
- Weight (Phonic):: 2 x 10.5 Kg (2 x 23 lbs.)

### 4. Cables: (estimated)

- **Projector**
  - Min. 6m (19') VGA cable (projector ↔ PC) Note: PC might need DV-I to VGA adaptor.
  - Min. 6m (19') power cable (projector ↔ power source)
- **PC**
  - Min. 3m (9') USB-2 active repeater cable (joystick ↔ PC)
  - power cable (PC ↔ power source)
- **Speakers:**
  - Audio cables (type of cable depends on the speakers)
    - Min. 5m (15') one speaker ↔ RCA plug on PC sound card
    - Min. 15m (45') other speaker ↔ RCA plug on PC sound card
  - Min. 2 x 5m (9') power cable (speaker ↔ power source)
- Various other **extension cables and adapters**, depending on size of room

### 5. Screen (if no adequate projection surface available – see „Screen or projection surface,” page 5)

- **Size:** ideally 3m high by 5m wide (9' x15'), min. 3m x 4m ( 9' x 12') NOT including borders of screen
- **Position of screen** within 10cm (4") of floor (**i.e. bottom edge of projection area of screen should be within several inches of floor**).
- **Frame** must allow screen to be within several inches of the floor! (e.g. Stumpfl Monoblox)

### 6. Navigation console (joystick, box, tripod, floorboard)

- **Joystick and joystick box**
  - Logitech Extreme 3D Pro USB **Joystick**
  - Time and materials for **modifications**, plus construction of aluminum cover & stick  
**Size:** 20 cm x 25 cm x 25 cm ( 8" x 10" x 10" )
  - **Weight:** 2 kg (4.5 lb.)

## 6. Navigation console (joystick, box, tripod, floorboard, continued)

- **Tripod to hold joystick box**
  - The joystick has to be firmly fixed to a tripod roughly **0.9m (35") above the floor level**. The **tripod legs** should be **fixed to the floor** so that users cannot knock it over. If the legs cannot be screwed directly into the floor, they must be fixed to a **wooden floorboard** (see below).
  - **Wooden surveyor's tripod**
  - Time and materials for **modifications**
  - **Dimensions of tripod:** 10 cm x 25 cm x 90 cm (4" x 10" x 35")
  - **Weight:** 2.5 kg (5.5 lb.)
- **Wooden floorboard** if needed, 1.2 cm (0.5") thick and 1.2 m x 1.2m (4' x 4'), painted to match floor color, with non-slip carpet pad underneath or held to floor with double-stick mounting tape.

## 7. Background information panels

- **8 info panels in a separate, well-lit room**
  - Printing and mounting (DIN A2/42x59.4cm or 18" x 24"): Euro €500 or US \$500
  - Time and materials for hanging of panels, plus lighting if necessary

## 8. Material for darkening room; other set-up costs

- **Black-out:** If there are **windows or skylights** in the installation space, they must be darkened with opaque film or theater drapes (**300g, flame retardant class 2**):

T+T, February 2010