

TRAINING SCHOOL GUIDE



LECTURES, PhD REPORTS, WORKSHOP: 12th - 17th SEPTEMBER 2016



HafenCity University Hamburg
Überseealle 16
20457 Hamburg, Germany
Prof. Dr.-Ing. Frank Wellershoff

In Cooperation with / Supported by:



As a part of the German/Brazilian research cooperation Novas Parceiras
„Energy efficient retrofitting of buildings in Brazil“



patrocinado por:



Deutscher Akademischer Austausch Dienst
German Academic Exchange Service



Ministério da
Educação

Ministério da
Ciência, Tecnologia
e Inovação



GENERAL INFORMATION.....	4
Brief Introduction	4
Organizing committee	5
Hotel recommendations	6
Hamburg City Map	7
HafenCity University Plan	8
Other Material	10
SCHEDULE OF THE WEEK	12
SOCIAL PROGRAM.....	13
FACADE GUIDE HAMBURG	14
NOTES	22

Brief Introduction

COST Action “Adaptive Facade Systems”
Training School at HCU, 12. – 17.09.2016

Modern building envelopes are high-tech components that must meet several requirements and respect certain limitations in regards to architectural design, structural performance, energy efficiency, indoor environmental quality and buildability. As a result, building envelope design has become a separate discipline in which facade engineers collaborate with other members of the design team in order to develop a facade that meets these various requirements and constraints.

The next generation of building envelopes consists of multifunctional and highly adaptive systems. The building envelope, as a physical border between the interior and exterior environment, is able to change its functions, features and behaviour in response to transient performance requirements and boundary conditions in order to improve the overall building performance.

The basic knowledge required to design an adaptive facade will be presented in the first half of this training school. In the second half, the acquired knowledge will be applied in a workshop, where groups of students must create a conceptual design of an adaptive facade for given design criteria. International experts from the EU and Brazil will hold lectures and guide the workshop.

Organizing committee

Prof. Dr.-Ing. Frank Wellershoff
Mobile: +49 (0)152 / 33 61 54 58
Mail: frank.wellershoff@hcu-hamburg.de



M.Sc. Matthias Friedrich
Mobile: +49 (0)176 / 70 55 96 41
Mail: matthias.friedrich@hcu-hamburg.de



Dipl.-Ing. Roman Baudisch
Mobile: +49 (0)176 / 72 71 57 03
Mail: roman.baudisch@hcu-hamburg.de



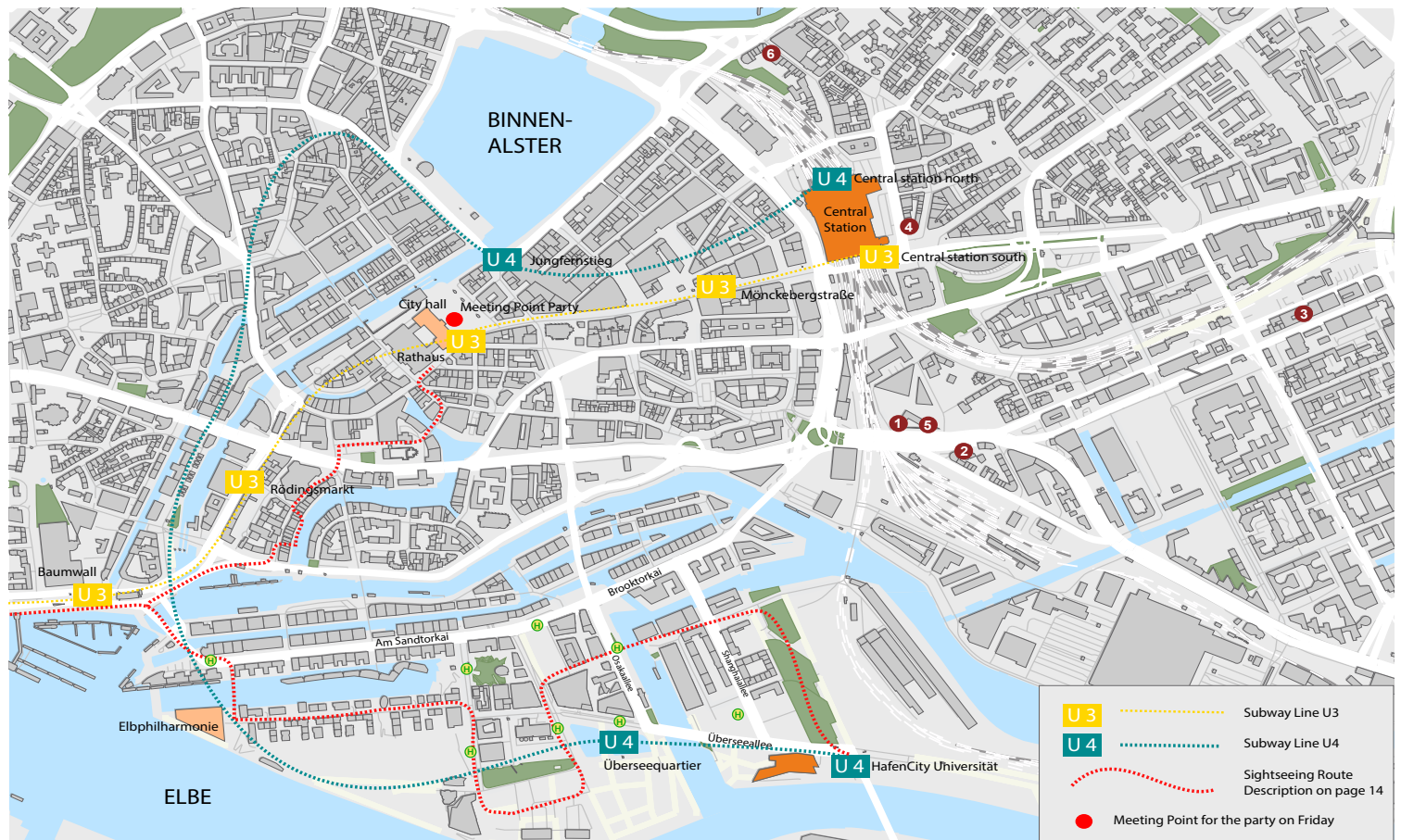
M.Sc. Matija Posavec
Mobile: +49 (0)151 / 28 78 32 00
Mail: matija.posavec@hcu-hamburg.de



Hotel recommendations

- | | |
|-------------------------------|---|
| 1 ibis Budget Hamburg City | Amsinckstraße 1
20097 Hamburg
Tel.: +49 (40) / 27 14 34 620 |
| 2 A&O Hamburg Hauptbahnhof | Amsinckstraße 2-10
20097 Hamburg
Tel.: +49 (40) / 64 42 10 45 600 |
| 3 A&O Hamburg City | Spaldingstraße 160
20097 Hamburg
Tel.: +49 (40) / 11 29 84 000 |
| 4 Generator Hostel Hamburg | Steintorplatz 3
20099 Hamburg
Tel.: +49 (40) / 22 63 58 460 |
| 5 ibis Hamburg City | Amsinckstraße 3
22769 Hamburg
Tel.: +49 (40) / 80 79 15 820 |
| 6 ibis Hamburg Alster Centrum | Holzdammer Weg 4-12 + 16
20099 Hamburg
Tel.: +49 (40) / 24 82 90 |

GENERAL INFORMATION



HafenCity University Plan

1st floor

U 4

◀ Überseequartier 500 m

Entrance West ▶

Excursion
Meeting point

toilet
(on the ground
floor behind
the main stair)

Room
150

◀ Entrance East

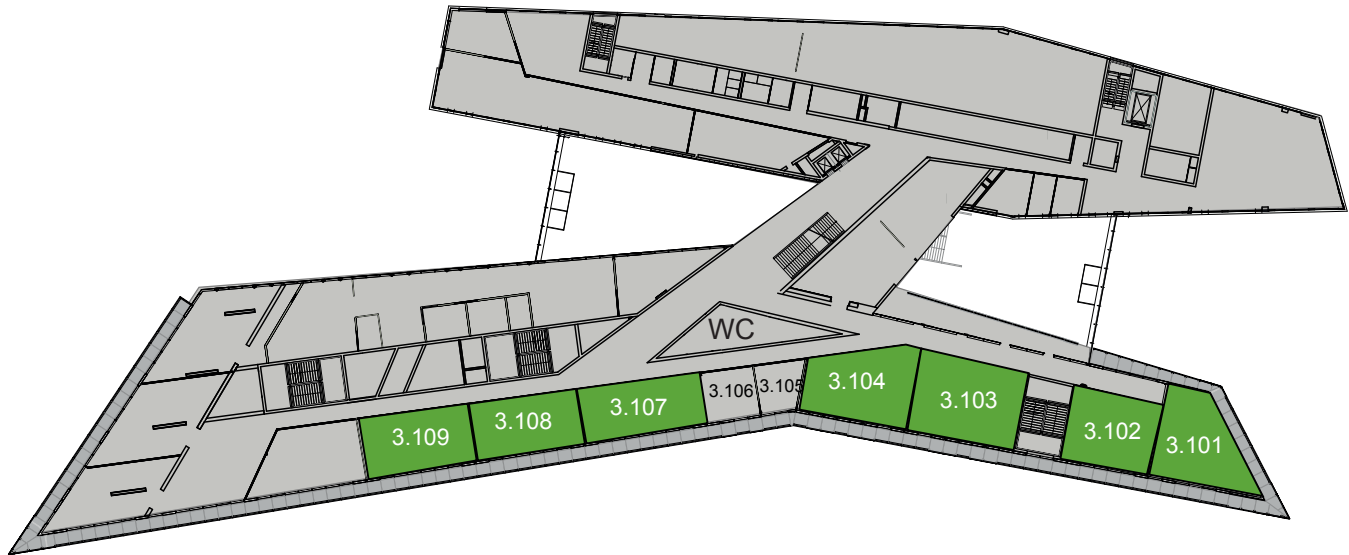
Snack
machine

HafenCity
Universität 100 m ▶

U 4

HafenCity University Plan

3rd floor



Internet Access

Members of universities or institutions affiliated to eduroam have access to the internet via eduroam.

Meeting point for the excursion

The meeting point for the excursion is at the infopoint in the foyer.

Taxi-Phone

+49 (40) / 22 11 22

Important phone numbers

Fire department and ambulance: 112

Police: 110

Public transportation

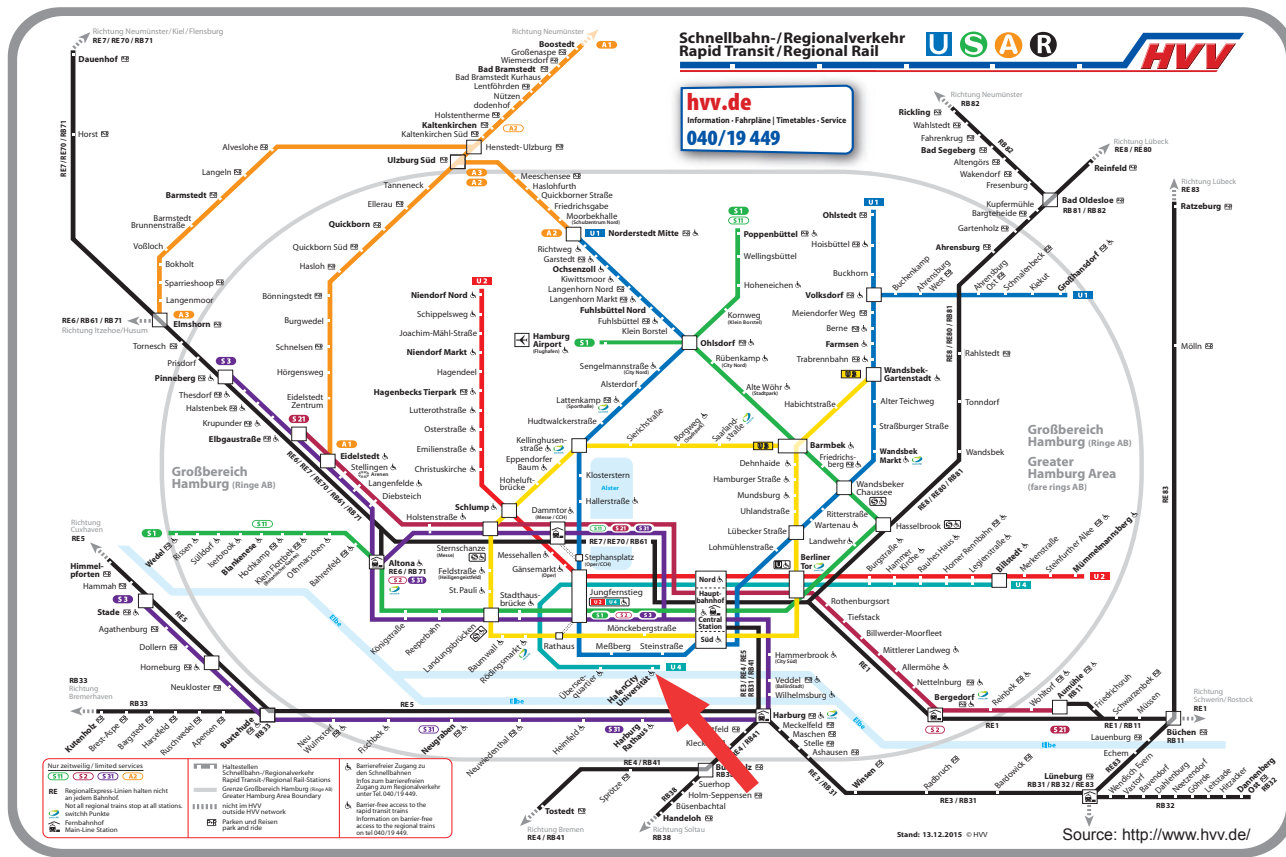
We are providing week-tickets for every participant which one will receive within the welcome package on the first day. The public transportation in Hamburg has trains, busses and ferries. As shown in the location map the HafenCity can be reached by U4 within 12 minutes from central station.

The ticket is valid from Monday, September 12th until Monday, September 19th 6 a.m. inside of the grey ring (check the map on the following map).

For more information check online: www.hvv.de/en

Be aware that the bus lines 30 to 39 are express buses. Travelling with these buses is subjected to an additional fee for all passengers.

GENERAL INFORMATION



SCHEDULE OF THE WEEK

		block 1 9:00 - 10:00	block 2 10:15 - 11:15	block 3 11:30 - 12:30	lunch 12:30 - 13:30	afternoon	evening
Monday	Foyer	Registration 8:15 - 8:50 foyer HCU entrance east	Tillmann Klein, Daniel Aelenei Room 150 Introduction to adaptive facades: General, history of adaptivity, definitions, the adaptive facade survey	Tillmann Klein, Daniel Aelenei Room 150 State of the art on adaptive facades	Tillmann Klein, Daniel Aelenei Room 150 Design of adaptive facades - Lessons learned from survey case studies	HCU Canteen Lunch Use your meal voucher	Room 150 PhD Progress Report 13:30 - 19:30 Feedback & Discussion HCU Canteen Welcome Dinner 20:00 You are invited to enjoy our dinner buffet
Tuesday		Room 150 Chiara Bedon Identify structural, fire + safety facade performances where ad- aptive technologies are useful. Life-cycle cost assesment	Room 150 Christian Struck Adaptive facade system design process	Room 150 Christian Struck Adaptive facade system per- formance analysis	HCU Canteen Lunch Use your meal voucher	Meeting at HCU foyer Excursion 14:00 - 18:00 See and learn from the buildings of the international building exhibition (IBA) http://www.iba-hamburg.de/en	
Wednesday		Room 150 Albert Castell Evaluate current simulation methods, identify lack of know- ledge, perspective for new simulation tools	Room 150 Jerome Le Dreau Map out performance metrics and requirements for adaptive facades / Experimental proce- dures and metrics, mock-up	Room 150 Frank Wellershoff Adaptive facade system per- formance measuring, occupant behavior, natural ventilation	HCU Canteen Lunch Use your meal voucher	Room 150 Workshop Intro 13:30 - 16:00 Definition and scope of the workshop	Elbe Terrace BBQ 16:00 Relax at the terrace and have a deli- cious barbecue
Thursday		Seminar rooms 3rd floor Workshop 9:00 - 12:30 Workshop „Adaptive Facade Design for New Buildings in Different Climate Zones“			HCU Canteen Lunch Use your meal voucher	Seminar rooms 3rd floor Workshop 13:30 - open end Workshop „Adaptive Facade Design for New Buildings in Different Climate Zones“	
Friday		Seminar rooms 3rd floor Workshop 9:00 - 12:30 Workshop „Adaptive Facade Design for New Buildings in Different Climate Zones“			HCU Canteen Lunch Use your meal voucher	Seminar rooms 3rd floor Workshop 13:30 - 18:00 Workshop „Adaptive Facade Design for New Buildings in Different Climate Zones“	Reeper- bahn It's Party Time! Time for party! See the Hamburg nightlife, guided by Locals
Saturday		Seminar rooms 3rd floor Workshop 10:00 - 13:30 Workshop „Adaptive Facade Design for New Buildings in Different Climate Zones“ Food We will have a small Brunch with Snacks, Fruits, Juice, Coffee, Tee and typical „Franzbrötchen“ from Hamburg as well as a lunch				Room 150 Final Presentation 13:30 - 15:30 Present your workshop results	Foyer Farewell 15:30 - 17:00

<p>Welcome Dinner</p> <p>On Monday we invite you to a Welcome Dinner inside the HCU canteen. A variety of food and drinks will be available.</p>	<p>Location: HCU canteen</p> <p>Date: Monday, 12.09.2016</p> <p>Food: Buffet</p> <p>Drinks: Included</p>
<p>Afterwork - Barbecue</p> <p>On Wednesday evening there will be a barbecue on the terrace in front of the HCU. We are looking forward to your visit and invite you to relax, eat and chat with your colleagues.</p>	<p>Location: HCU Elbe Terrace</p> <p>Date: Wednesday, 14.09.2016</p> <p>Food: Barbecue with veg. alternatives</p> <p>Drinks: Included</p>
<p>Party</p> <p>Hamburg has a vibrant nightlife. We offer you the possibility to discover the nightlife together. Enthusiasts will meet on Friday at 8 p.m. in front of the city hall and proceed towards St. Pauli.</p>	<p>Location: ZWICK St. Pauli</p> <p>Meetingpoint: 8 p.m. in front of the City Hall</p> <p>Date: Friday, 16.09.2016</p> <p>Drinks: 2 drinks included</p>
<p>Farewell</p> <p>On Saturday, the official farewell takes place after the final presentation.</p>	<p>Location: HCU Foyer</p> <p>Date: Saturday, 17.09.2016</p>

HafenCity - Along the Elbe River - Historical Center

HafenCity is a district in the center of Hamburg. It is one of Europe's largest inner-city urban redevelopment projects. The new building of the HafenCity University is located on the East side of this district.

The area offers the opportunity to experience a variety of recently finished buildings with innovative facade designs. Moreover, the city offers a lot of attractive locations to have an enjoyable walk passing by interesting facade envelopes and city sights. A recommended trajectory would start on the East end of the HafenCity through to the Elbphilharmonie, whilst passing by the pier of the sightseeing boats, where there is a great view towards the harbour. After a short walk towards the famous fish-market, there are refurbished warehouses and attractive new office buildings along the Elbe River to be discovered. This area is also called the "String of Pearls at the Elbe River" due to the exposed location and a direct view on the Elbe.

Another option, after leaving the HafenCity at the Elbphilharmonie, is to continue in the North-East direction to the Deichstraße. Along the Nikolaifleet there are the oldest houses of the historic center of Hamburg, which have survived the 1842 Great Fire of Hamburg. These projects provide a small insight into the diversity of attractive spots located in and around Hamburg. We hope that this guide provides you with some ideas for creating memorable experiences, while discovering the cultural value of Hamburg.





Elbphilharmonie

Address:

HafenCity, Platz der Deutschen Einheit 1

Architects & planners:

Herzog & de Meuron Architekten und Ingenieure
Höhler + Partner Architekten und Ingenieure

Completion:

2017 (planned)

Facade:

Unitized curtain wall, freeform double glass unit, chrome printing

Short description:

The Elbphilharmonie is the new concert hall in the HafenCity quarter of Hamburg. The glass facade consists of 1,100 individual freeform curved glazing panels with a pattern of chromatic glass area individually printed for each panel. Together with a sun protection layer the solar heat gain of the building is significantly reduced. The complex system of glass layers creates a unique visual effect caused by the density of chromatic area decreasing from the panel frame to the center of the glazing.



Unilever-Haus

Address:

HafenCity, Am Strandkai 1

Architects & planners:

Behnisch Architekten, Stuttgart

Completion:

2009

Facade:

Double-skin facade, ETFE-Foil

Short description:

The new Unilever headquarter building for Germany, Austria and Switzerland is located next to the Elbe, prominently positioned in the HafenCity. The thermal layer of the facade is nearly fully glazed with openable elements. The second layer protects the inner skin from high wind loads and reduces the solar heat gain of the building. The outer layer is made of a flexible ETFE foil.



CC01 Commercial Center HafenCity

Address:	HafenCity, Großer Grasbrook 9
Architects & planners:	Baumschlager Eberle ZT GmbH, Lochau, Austria
Completion:	2011
Facade:	Double-skin facade, glass lamellas, low iron glass
Short description:	The new CC01 Commercial Centre HafenCity is situated between the taller buildings of Grasbrook street and the smaller residential houses of the Dalmannkai street. The thermal layer of the facade is fully glazed and offers openable elements. A secondary layer of vertical glass lamellas made of low iron glass is added to reduce the direct solar heat gain of the building by 14%. Additionally the secondary layer is coated with a self-cleaning layer on the outside which increases the maintenance periods significantly.



Office Building at Fish Market

Address:	Pinnasberg 45
Architects & planners:	SPENGLER · WIESCHOLEK Architekten Stadtplaner
Completion:	2005
Facade:	Glass panel facade, exterior shutter shading-system
Short description:	The building houses offices and shops and is designed with two different facade types on a straight cubage. The north part of the facade is glazed with enamelled abstract ivy pattern facing the public square between the building and "Dock 47". The thermal layer of the west facade is mainly glazed but a second layer is added which has a large scaled shutter system that enables the configuration of the facade in respect to thermal comfort with regard to direct solar heat gain, glare protection and the visual connection to the Fish Market.



Atelier and lofts in the “Stadtlagerhaus”

Address: Große Elbstrasse 27
Architects & planners: Alsop & Strömer Architects
Completion: 2001
Facade: Adapted steel-balconies with a glass facade
Short description: The city warehouse of 1880 was reanimated by refurbishing the ground floors and by adding additional 4 floors with adapted steel balconies. The balconies remind of the original chest balconies of the former mill and provide additional space for the flats in the upper floors. On the outside of the balconies an additional layer of glass panels was added to protect the balconies against wind and rain.



Holzhafen West

Address: Große Elbstrasse 59
Architects & planners: Kees Christiaanse
Completion: 2013
Facade: Steel-cable facade
Short description: The office building architecturally reminds of a traditional Hamburg warehouse. It is located directly at the Elbe with views towards the harbour of Hamburg. Three wings are grouped around courtyards open terrace and provide plenty of light in the offices. The thermal layer in front of one courtyard is designed as a steel cable facade to provide high transparency. The facade is a few meters recessed under the upper floor in order to reduce the direct solar heat gain during the summer.



Office building at the Elbe

Address:	Neumühlen 17
Architects & planners:	Antonio Citterio and Partners
Completion:	2001
Facade:	Timber curtain wall facade with horizontal exterior shading slab elements
Short description:	The building is located directly at the "String of Pearls at the Elbe River" and it accommodates an auditorium, a restaurant and public places on the ground floor. The thermal layer of the upper floors can be used for natural ventilation. The facade is designed with timber frames which have a deeper and thicker frame than aluminium or PVC. The resulting pattern was used to integrate an exterior shading system consisting of horizontal concrete slab elements which emphasized the horizontality of the building.



Klubhaus St. Pauli

Address:	Spielbudenplatz 21/ 22
Architects & planners:	akyol kamps : bbp architekten
Completion:	2015
Facade:	Media facade
Short description:	The Klubhaus St. Pauli accommodates a variety of music clubs, restaurants and offices on the upper floors. The projected media facade of the Klubhaus St. Pauli offers Hamburg's entertainment district an extraordinary spectacle of artistic light and video installations. This building is a pioneering landmark and a new attraction for the citizens and visitors of the city.



Dancing Towers

Address:

Reeperbahn 1

Architects & planners:

BRT Architects LLP

Completion:

2012

Facade:

Aluminium Single Skin Facade

Short description:

The commercial office building visually appears as two towers with a height of 75 m and 85 m which seem like they are dancing. Their kinked facades, made of aluminium and glass, are bent at different angles and pick up the dynamic of the two towers. The individual units are inclined at different angles to each other and the inner facade is rotated to the outer facade, so that the facade appears to swing around the "Tanzende Türme". The two towers are inclined towards each other and kinked at differing heights which results in an inclination of the primary facade of approximately 7 degrees. A total of 16 different inclinations had to be considered for the facade construction. These inclinations in particular create the impression of the dancing towers.



Chilehaus

Address:

Fischertwiete 2

Architects & planners:

Fritz Höger

Year of construction:

1922 - 1924

Facade:

Historic facade of Bockhorner clincer bricks with decorative ceramic elements

Short description:

It is an exceptional example of the 1920s Brick Expressionism style of architecture. The Chilehaus building is famed for its roof, which reminds of a ship's prow, and the facades, which meet at a very sharp angle at the corner of the Pumpen- and Niedernstrasse. The building has been built with the use of 4.8 million bricks.



Alte Post

Address:

Große Bleichen 30

Architects & planners:

Alexis de Chateauneuf

Completion:

1848

Facade:

historic red brick facade with sandstone elements in round-arch style (Rundbogenstil)

Short description:

The cultural monument was built in the style of Tuscan Renaissance with arches of sandstone shortly after the big fire and was finished already 1847. Initially the building accommodated the first central post office of Hamburg. The historic building was renovated the first time in the 1970s, restored and furnished with Hamburg's first shopping-passage.



Seven Sisters

Address: Deichstraße 37
Architects & planners: unknown
Completion: 17th and 18th centuries
Facade: historic timber framing facade

Short description: Located at the Nikolaifleet one can experience the last existing ensemble of historic residential buildings in Hamburg. The timber-framed houses were built during the 17th and 18th centuries and also survived the Great Fire of 1842 and the destruction of the Second World War.

A series of horizontal dotted lines for taking notes, spanning the width of the page. The lines are evenly spaced and extend from the left margin to the right edge of the page.

HAMBURG, 2016

