University of Applied Sciences and Arts of Southern Switzerland
Department of Environment Constructions and Design
Institute of Applied Sustainability to the Built Environment

SUPSI

Swiss BiPV Competence Centre

Louvres Balcony

Energy Bunker
Hamburg Wilhelmsburg (D)

Building Details

CONTACTS	Name	Website (or e-mail)
Owner	Freie und Hansestadt Hamburg	www.hamburg.de
Architect	HHS Planer + Architekten AG	www.hhs.ag
Energy Consultant	Hamburg Energie	www.hamburgenergie.de
PV Installer	BLIS Solar, Hannover	www.blis-solar.de

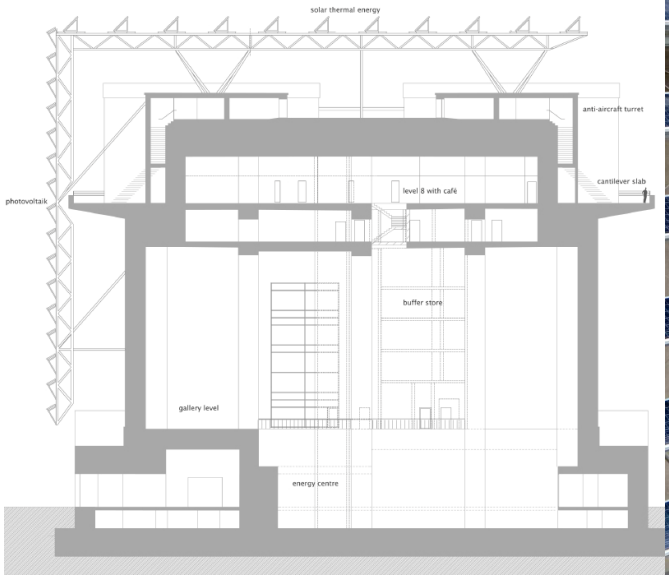
BUILDING

Completion year	1942 Building		2013 PV Plant	
Category	New	Renovation	Enlargement	Other
Typology	Residential	Administration	Industrial	Sport
	Agricultural	Urban	Historical	Other
Building Energy Performance		**kWh/m² y**	-	

Description

The reconversion project of ex fallout shelter in Wilhelmsburg district in Hamburg is an exemplary energy renewal on urban scale, important both socially than environmentally. The massive concrete building, required a total renovation of external shell remained intact, while retaining the original building character. The new destination involves the public use and technical use. A combined system on 3 levels of renewable energy is provided: solar energy, biomass plant and cogeneration. Thanks to the enormous heat reservoir, located in the central room, the Energy Bunker will provide heat and power to about 3,000 families. The tank has a capacity of 2,000,000 liter of water and is powered by units of solar thermal, biogas, wood combustion system and heat from industrial processes in the surrounding area. The solar collectors are installed on the roof and PV panels on the south façade, on an exterior steel structure, slightly detached from the building, leaving shape recognizable. In addition to being an architectural identity, solar system can produce a heat output of over 850 kW. Every energy production system has been included within the structure through minimal interventions, making it instantly recognizable from the outside.

Aknowledgments European Solar Prize 2013; IBA Excellence Awards 2013; Special Mention Architizer Award 2014; Special Mention German Design Award 2015;



BiPV Details

LOCATION OF PLANT

Roof	Flat roof	Sloped	Curved	
Façade	Cladding	Balcony	Greenhouse	Curved
Glass	Façade	Roof	Solar shading	Canopy
Orientation	South	West	East	North
BiPV System	Other architectural elements			

ARCHITECTURAL EVALUATION

Color	blue
Transparency	opaque
Frame	Steel frame

COSTUMIZATION LANGUAGE AT COMPONENT SCALE

PV CELL **MODULE LAYERING** **MODULE FEATURES** **DUMMIES**

DESCRIPTION

SPECIFICATION

Photovoltaic	Monocrystaline	Multicrystalline	Thin Film	
PV Module	**Cells**	polycrystalline Si 6.2" (156 x156mm)		
	Module	SOLON Blue 230/07, 250W(facade); Ritter XL Solar (vacuum collectors on roof)		
Power	**kWp**	100 (PV); 750(collectors)		
Size	**m²**	1350 (collectors on roof); 670 (PV Façade)		
Energy production	**kWh/year**	79000 MWh /y		
Cost	**€/m²**	328		