

An aerial photograph of Hamburg, Germany, showing a dense urban landscape with various building styles, including historic red-brick structures and modern glass skyscrapers. The Spire of St. Nikolai is prominent in the center. In the background, industrial smokestacks emit white plumes of smoke against a blue sky with light clouds.

## Research Project

Duration: 2015-2016

**HCU** | HafenCity Universität  
Hamburg

# KLIQ

## Adapting to Climate Change in High Density Urban Quarters

# Adapting to Climate Change in High Density Urban Quarters. Case study: Hamburg

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**Research field:** Sustainable urban and infrastructure planning; energy-optimized construction and passive climate control

**Funding:** Hamburg Ministry of Environment and Energy (Behörde für Umwelt und Energie Hamburg [BUE])

High-density urban quarters are particularly sensitive to the impacts of climate change because of their structural density and their high ratio of impermeable surfaces. Measures to protect the city from urban flooding caused by extreme rainfall events are essential, as are measures to address warmer periods, including building-level retrofits to prevent excessive indoor heat gain in summer. Both the city administration and private homeowners must take steps to address these challenges.

## Project goal

Climate change adaptive retrofits should be developed and discussed together with local stakeholders. Because flood protection measures on private properties present relatively limited potential, they must be combined with planning concepts for public lands. On the building level, the possibilities for passive climate control of existing buildings should be assessed and, when applicable and necessary, coupled with active cooling using rainwater.

## The bigger picture and the project in Hamburg

As a first step, inner city climate adaptive concepts in international reference cities will be analysed and rated. This includes, for example, Copenhagen Climate Resilient Neighbourhood or London Green Infrastructure Audit. The transferability of the approaches will then be reviewed for a specific quarter in Hamburg, modified as appropriate, and presented in the form of a design manual. The research project builds on the results of the projects KLIMZUG-NORD and RISA (RainInfraStructureAdaptation).

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