Architectural Design in Arctic Regions - Issue of wind-driven snow in a built environment for sustainable urban planning

The extreme climate is a growing problem caused by climate change in many parts of the world. Research in Arctic regions offer a great potential for adaptation for other extreme climates. The issue of snow drift and accumulation in north European and arctic regions exists since the first human settlements in these areas. The need to adapt to the extreme climatic conditions lead to specific traditions of construction forms and development concepts utilizing the available resources. Focuses of the research will be the relation between the architectural design of buildings as individual units or as arrangement in an urban grid and the dominating climatic boundary conditions of snow and wind in arctic regions. Especially the accumulation of wind driven snow on building roofs and on the ground around and between buildings has caused damages of roof structures and blockage of accumulation in arctic urban roads. Densification of urban areas in snow prone regions of extreme climates imposes another problem on the city infrastructure functionality. Climate change also affects the usage of the urban realm in nordic cities. The densification of urban area allows rethinking the potential of communal space for city life and human comfort. Increasing temperatures in summer season give the incentive for human activities as known from more temperate climate zones. Such activities can be supported by enhancing the urban microclimate though sheltering measures. These shelters might in winter season increase the issue of snow accumulation. City planning in arctic regions faces the challenge to accommodate for snow drift and accumulation during winter season and sheltering in summer season.

General information
State: Published
Organisations: Department of Civil Engineering, Section for Structural Engineering
Contributors: Fiebig, J., Koss, H.
Number of pages: 1
Publication date: 2014

Host publication information
Title of host publication: Abstract Book - DTU Sustain Conference 2014
Place of publication: Kgs. Lyngby
Publisher: Technical University of Denmark (DTU)
Research output: Research - peer-review » Conference abstract in proceedings – Annual report year: 2014