

Indoor air quality in the Swedish housing stock and its dependence on building characteristics - DTU Orbit (09/08/2016)

Indoor air quality in the Swedish housing stock and its dependence on building characteristics

Data from a recent Swedish survey on the status of the housing stock and indoor air quality were placed in the public domain by the Swedish National Board of Housing, Building and Planning in 2011. The available parameters included the year of construction, dwelling location, type of ventilation system, temperature, relative humidity, air exchange rate (AER), and concentrations of nitrogen dioxide (NO₂), formaldehyde and Total Volatile Organic Compounds (TVOC) from 157 single-family houses and 148 apartments. The median AER was lower in the single-family houses than in apartments (0.33h⁻¹ vs. 0.47h⁻¹). The majority of houses (80%) did not comply with the building code that requires 0.5 air changes per hour. The median concentrations in single-family houses and apartments were 6.0 and 10µg/m³, respectively, for NO₂, 22 and 13µg/m³ for formaldehyde, and 236 and 143µg/m³ for TVOC. All of these differences between single-family houses and apartments were statistically significant. The median values for AER and the median values for the concentrations of NO₂, formaldehyde and TVOC were similar to those found in other Scandinavian studies. Multivariate linear regression models revealed that air exchange rate was a significant predictor of the concentrations of all three indoor pollutants. While ventilation seemed to be a source of NO₂, increased ventilation rate appeared to decrease the indoor concentrations of formaldehyde and TVOC. © 2013 Elsevier Ltd.

General information

State: Published

Organisations: Department of Civil Engineering, Section for Indoor Environment, Swedish Environmental Research Institute

Authors: Langer, S. (Ekstern), Bekö, G. (Intern)

Keywords: (Building characteristics, Indoor climate, Air exchange rate, NO₂, Formaldehyde, TVOC)

Pages: 44-54

Publication date: 2013

Main Research Area: Technical/natural sciences

Publication information

Journal: Building and Environment

Volume: 69

ISSN (Print): 0360-1323

Ratings:

BFI (2015): BFI-level 1

Scopus rating (2015): 2.121 2.197

BFI (2014): BFI-level 1

Scopus rating (2014): 2.025 2.842

BFI (2013): BFI-level 1

Scopus rating (2013): 1.609 2.597

ISI indexed (2013): ISI indexed yes

BFI (2012): BFI-level 1

Scopus rating (2012): 1.41 2.87

ISI indexed (2012): ISI indexed yes

BFI (2011): BFI-level 1

Scopus rating (2011): 1.214 2.233

ISI indexed (2011): ISI indexed yes

BFI (2010): BFI-level 1

Scopus rating (2010): 1.296 1.96

BFI (2009): BFI-level 1

Scopus rating (2009): 1.088 1.851

BFI (2008): BFI-level 1

Scopus rating (2008): 0.959 1.384

Scopus rating (2007): 0.831 1.791

Scopus rating (2006): 1.096 1.65

Scopus rating (2005): 0.979 1.203

Scopus rating (2004): 0.572 1.259

Scopus rating (2003): 0.96 0.961

Scopus rating (2002): 1.032 1.382

Scopus rating (2001): 0.831 1.118

Scopus rating (2000): 0.543 1.188

Scopus rating (1999): 0.542 1.174

Original language: English

DOIs:

10.1016/j.buildenv.2013.07.013

Source: dtu

Source-ID: n::oai:DTIC-ART:compendex/391068828::31486

Publication: Research - peer-review › Journal article – Annual report year: 2013