

Theme 3 Breathing City into Practice

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Challenges Awareness of pollution outdoors

Every breath we take: the lifelong impact of air pollution

Report of a working party February 2016

Challenges Awareness of pollution outdoors **Increasing awareness of pollution** indoors

- Health Effects of Modern Airtight Construction
- http://hemacnetwork.com
- Royal College of Paediatrics and Child Health
- https://www.rcpch.ac.uk/resources/inside-story-health-effects-indoor-air-quality-children-youngpeople
- National Institute for Health and Care Excellence (NICE): Indoor air quality at home
- https://www.nice.org.uk/guidance/ng149

HEMAC NETWORK

HEALTH EFFECTS OF MODERN AIRTIGHT CONSTRUCTION

HEALTH EFFECTS OF MODERN AIRTIGHT CONSTRUCTION

A MULTIDISCIPLINARY NETWORK

Awareness of the impacts of climate change, rising energy prices, fuel poverty and a demand for energy security have prompted significant changes in design thinking, construction practice, building materials and building legislation aimed at reducing energy use and carbon dioxide emissions. A particular example of this is the fabric first approach and increasing requirements for air-tightness in housing. Whilst this achieves a primary objective of reducing heat loss through ventilation, it is not clear if the requirements for healthy ventilation have kept pace. and there is emerging evidence of poor indoor air quality and inadequate ventilation. Poor ventilation in buildings has been linked to a multitude of public health issues, particularly for conditions such as asthma and COPD that are all known to be exacerbated by poor air quality.

Our goal is to bring public health and building professionals together with architects and their clients to identify shared research questions and develop ways of addressing these issues, with an overall aim of supporting the design of healthy, low energy homes. Despite shared interests between the built environment, environmental health and medical research communities, they are generally not well connected. Indeed there is also very little connection between the housing research and fuel poverty communities as well. The network therefore aims to bridge the gap between these complementary fields, providing a platform for discussion and collaboration while facilitating knowledge exchange to the built environment industries, such as housing associations and architects.

The programme will involve a trans-disciplinary team comprising of academics and industry professionals from the fields of respiratory health, indoor air quality and the built environment.

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NICE has also produced a guideline on outdoor air pollution

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Home Resource

The inside story: Health effects of indoor air quality on children and young people

Research & Evidence team RCPCH and Roval College of Physicians

Children in the UK spend more and more of their lives indoors, and the health impact of the air within our homes and schools must be taken seriously. This report is based on a systematic review of the science of indoor pollution, and conversations with children, young people and families. We make recommendations for Government and local authorities, and provide guidance for families.

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Related content

Research activities

Growing evidence linkin

air pollution and respirat problems in children

Adverse effects of indoc

pollution on child health investigated in first ever

Landing page

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Highlights from 'The Inside story'

Last modified: 28 January 2020 Post date: 28 January 2020

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Challenges Where do these problems overlap?

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Poor regulation - fragmented standards Lack of compliance Lack of design skills and tools Lack of knowledge to inform user behaviour No connection between urban and building scale problems

Home Energy Scotland - TV commercial Scottish Government Subscribe 3,505

6,372

Theme 3: Objectives

Using the networks knowledge and expertise to inform:

- Policy, planning and regulation Tools and guidance for designers and clients Engage with industry and manufacturing

- Information, advice and tools for owners and occupants
- Citizen Science
- Data collection

Theme 3: Objectives How we inform policy and regulation

"... but no-one died"

ALL BEDROOMS (TOTAL 40) Percentage of Time Bedrooms > 1000PPM CO2 - Time Weighted Average 11pm - 7am

The Scottish Government

Mackintosh Environmental Research Unit Anderson Bell Christie ASSIST DESIGN ESRU, Dept. of Architecture, Strathclyde University

Research Project To Investigate Occupier Influence On Indoor Air Quality In Dwellings

21 August 2014

A8460492

Theme 3: Objectives How we improve design

Source: Fourwalls, Building Sciences (RSK); Leeds Beckett University; Innovate UK BPE portfolio

Energy Efficiency Rating

		Current	Potential
Very energy efficient - lower running costs			
(02-100) A			
(81-91) B			
(69-80)			70
(55-68)			70
(19-54)		52	
(21-30)			
(1-20) G			
Not energy efficient - higher running costs			
UK 2005	Dire	ctive 2002/91/	ec 💭

Environmental (CO₂) Impact Rating

Theme 3: Objectives How we improve design

Source: Fourwalls, Building Sciences (RSK); Leeds Beckett University; Innovate UK BPE portfolio

Design and Detailing for Airtightness

Chris Morgan

page 1 cf 63

© SEDA 2006

Theme 3: Objectives How we inform and involve building users

How Your Lo	w Carbon Home Works
	🕷 Overview
	Heating
	Ventilation
	Hot Water
~	Energy Saving Features
	🕷 Keeping it Working
Ĭ	

Indoor Air Quality Home User Guide

Theme 3: Objectives How we inform and involve building users

How Your Lo	w Carbon Home Works
	🕷 Overview
	Heating
	Ventilation
	Hot Water
~	Energy Saving Features
	🕷 Keeping it Working
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Indoor Air Quality Home User Guide

Outcomes **COVID: Translating knowledge into actions** Policy

📾 GOV.UK

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Research and analysis EMG: Role of ventilation in controlling SARS-CoV-2 transmission, 30 September 2020

Paper prepared by the Environmental and Modelling group. (EMG).

Published 23 October 2020 From: Scientific Advisory Group for Emergencie

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EMG: Role of ventilation in controlling SARS-CoV-2 transmission - 30 September 2020

PDT, USHD, 32 pages This file may not be suitable for users of assistive technology.

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Details

Paper by EMG on the role of ventilation. It was considered at $\underline{\mathsf{SAGE}\,\mathsf{60}}$ on 1October 2020.

The paper is the assessment of the evidence at the time of writing. As new evidence or data emerges, SAGE updates its advice accordingly.

These documents are released as pre-print publications that have provided the government with rapid evidence during an emergency. These documents have not been peer-reviewed and there is no restriction on authors submitting and publishing this evidence in peer reviewed journals.

Related content

NERVIAG: Is there evidence for genetic change in SARS-CoV/2 and if so, do nutations affect virus phenotype? - 30 aptember 5020

SAGE meetings. October 2020

SPI-M-C: Summary of SAGE advice on segmentation, 15 October 2020 SAGE 61 minutes: Coronavirus (COVID-19) response, 8 October 2020, SPI-M-C: Consensus statement or COV 049,15 October 2020

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SAGE meetings, October 2020

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Research and analysis

SPI-B/EMG: COVID-19 housing impacts, 10 September 2020

Paper prepared by the Scientific Pandemic Influenza Group on Behaviours (SPI-B) and the Environmental and Modelling group (EMG).

Published 2October 2020 From: Scientific Advisory Group for Emergencies

Documents

paper - 10 September 2020 PDF, 259KB, 11 pages

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Details

SPI-B/EMG paper prepared in response to a Ministry of Housing, Communities and Local Government (MHCLG) commission for advice on the role of housing in transmission. It was considered at SAGE56 on 10 September 2020.

It should be viewed in context: the paper was the best assessment of the evidence at the time of writing. The picture is dev ng rapidly and, as new evidence or data emerges, SAGE updates its advice accordingly.

Therefore, some of the information in this paper may have been superseded and the author's opinion or conclusion maysince have developed.

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COVID-19. 2 September 2028 COG-UK: Summary report of COVID-19 reinfection. 3 September 2020

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SAGE meetings. September 2020

Published 23 October 2020

Outcomes Translated into guidance for industry

CIBSE

Version 4 23 October 2020

Challenges **Translated into actions for people**

Initial Theme 3 project to survey ventilation awareness and use

SOCIETY

In the worst-case scenario, **if no measures are taken.** 14 of the customers will be infected after four hours

https://english.elpais.com/society/2020-10-28/a-room-abar-and-a-class-how-the-coronavirus-is-spread-throughthe-air.html

Challenges **Translated into actions for people**

Initial Theme 3 project to survey ventilation awareness and use

https://www.facebook.com/10downingstreet/videos/how-ventilation-canreduce-the-spread-of-coronavirus/666766760697972/

Theme 3: Activities

Theme 3: Activities

Engage and inform users and stakeholders from micro to macro scales

Policymakers, regulators, standards, designers, building owners and operators and end users

Range of events, workshops, focus groups, pump priming studies, engagement activities planned over the course of the network.

Theme 3 citizen science activities – doing things with people not to people

Theme 3: How?

Theme 3 - Key Questions

- Who are the key stakeholders that we need to engage with?
- Stakeholders: Gaps in knowledge what do they need to know?
- What evidence is needed to drive policy and regulatory change?
- How do we engage and inform built environment professionals?
- What tools are needed to connect design from room/building/street/ town/city? - where are the gaps?

Theme 3 - Key Questions

- How can we collect data on pollution and health in buildings?
- What information, advice, advocacy is needed by building users?
- How can we engage with and inform building clients and users?
- How can the network support people with health vulnerabilities?

Theme 3: Impact

"Buildings don't use energy, people do" K. Janda

"Buildings don't get sick, people do"