

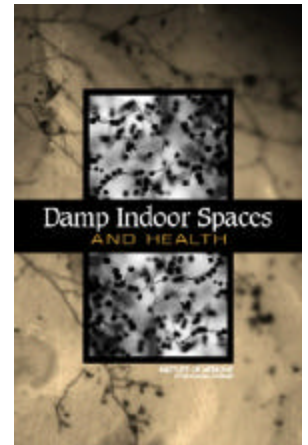
# DAMP INDOOR SPACES AND HEALTH

Almost all homes, apartments, and commercial buildings will experience leaks, flooding, or other forms of excessive indoor dampness at some point. Excessive dampness is not only a problem by itself but also a contributor to several potentially problematic exposures. *Damp Indoor Spaces and Health* explores these issues through a broad range of topics that includes how and where buildings get wet, how dampness influences microbial growth, and potential public health responses to the issue.

Excessive dampness influences whether mold as well as bacteria, dust mites, and other such agents are present and thrive indoors. Moreover, wetness may cause chemicals and particles to be released from building materials. Scientific evidence reviewed in the report links mold and other factors related to damp conditions in homes and buildings to asthma symptoms in some people with the chronic disorder, as well as to coughing, wheezing, and upper respiratory tract symptoms in otherwise healthy people. Insufficient evidence exists to draw firm conclusions regarding many other health outcomes.

The committee responsible for *Damp Indoor Spaces and Health* recommends that—given the frequent occurrence of moisture problems in buildings and their links to respiratory problems—excessive indoor dampness should be addressed through a broad range of public health initiatives and changes in how buildings are designed, constructed, and maintained. Moisture and mold problems stem from building design, construction and maintenance practices, and building materials in which wetness lingers. Technical information describing how to control dampness already exists, but architects, engineers, building contractors, facility managers, and maintenance staff do not always apply this knowledge, the report says. Guidelines for preventing indoor dampness should be developed at the national level to promote widespread adoption and to avoid potentially conflicting advice from different quarters.

This important report will be of interest to a wide-ranging audience of science, health, engineering and building professionals, government officials, and members of the public.



**Excessive dampness is not only a problem by itself but also a contributor to several potentially problematic exposures.**

**A comprehensive literature review finds sufficient evidence of an association between damp indoor environments and some upper respiratory tract symptoms, cough, wheeze, and asthma symptoms in sensitized persons.**

### **FOR MORE INFORMATION...**

Copies of *Damp Indoor Spaces and Health* are available from the National Academies Press, 500 Fifth Street, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area); Internet, <http://www.nap.edu>. The full text of this report is available at <http://www.nap.edu>.

This study was supported by funds from the Centers for Disease Control and Prevention. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the organizations or agencies that provided support for the project.

The Institute of Medicine is a private, nonprofit organization that provides health policy advice under a congressional charter granted to the National Academy of Sciences. For more information about the Institute of Medicine, visit the IOM home page at [www.iom.edu](http://www.iom.edu).

Copyright ©2004 by the National Academy of Sciences. All rights reserved.  
Permission is granted to reproduce this document in its entirety, with no additions or alterations.

### **COMMITTEE ON DAMP INDOOR SPACES AND HEALTH**

**Noreen M. Clark, Ph.D. (Chair)**, University of Michigan; **Harriet M. Ammann, Ph.D., DABT**, Washington State Department of Ecology; **Bert Brunekreef, Ph.D.**, University of Utrecht (The Netherlands); **Peyton A. Eggleston, M.D.**, Johns Hopkins University; **William J. Fisk, M.S., P.E.**, Lawrence Berkeley National Laboratory; **Robert E. Fullilove III, Ed.D.**, Columbia University; **Judith Guernsey, Ph.D.**, Dalhousie University (Canada); **Aino Nevalainen, Ph.D.**, National Public Health Institute (Finland); **Susanna G. Von Essen, M.D.**, University of Nebraska Medical Center

#### **Consultants to the Committee**

**Terry Brennan, M.S.**, Camroden Associates, Inc.  
**Jeroen Douwes, Ph.D.**, Massey University (New Zealand)

#### **IOM STAFF**

**David A. Butler, Ph.D.**, Study Director; **Jennifer A. Cohen**, Research Associate;  
**Joe A. Esparza**, Senior Project Assistant; **Elizabeth J. Albrigo**, Project Assistant; **Norman Grossblatt**, Senior Editor; **Rose Marie Martinez, Sc.D.**, Director, Board on Health Promotion and Disease Prevention