

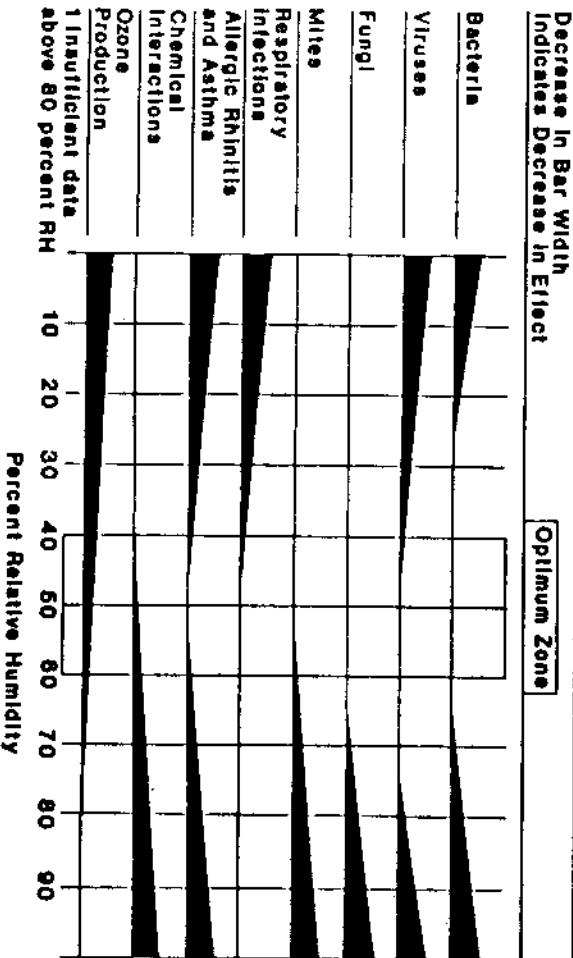
HUMIDITY CRITERIA FOR BUILDINGS

In 1983, Theodor D. Sterling & Assoc. undertook a review of criteria for residential exposure to water vapour for Health and Welfare Canada. The results of that project, "Criteria for Human Exposure to Humidity in Occupied Buildings" were published by ASHRAE in 1985 as part of a symposium on, "The Benefits of Humidification." This paper has now been referenced in the New Ventilation Standard 62-1989 and is part of the technical background for revisions to Thermal Comfort Standard 55-1981.

The paper concludes that an ideal humidity guideline should specify a relative humidity range that minimizes health and comfort problems and reduces the growth of biological contaminants and the speed of chemical reactions.

The following chart was included in the paper and may be used as a guide for mechanical system designers to identify the optimal zone of humidity. The chart suggests that the optimal conditions to enhance human health by minimizing the growth of biological organisms and the speed of chemical interaction occur in the narrow range between 40% to 60% relative humidity at normal room temperature.

ASHRAE standards have long provided guidance for engineers on the control of humidity to achieve comfortable conditions. Until 1981, the acceptable range of allowable humidity was between 20% and 60%. However in 1981, the upper limit of that range was raised to 90% to permit greater energy conservation. But conditions that impact health and comfort through the growth and accumulation of noxious organisms and chemicals suggest a reduction of the existing range of acceptable relative humidity to the region between 40% to 60%. Although this range is much narrower than the current ASHRAE standard (and would, if adopted, increase building energy use)



From Arundel et al. (1986).

region between 40% and 60%. Although it would also help minimize many of the health and comfort problems in buildings, especially those that appear to plague the modern, sealed office structure causing "sick building" problems.

For more information on the effects of humidity, please contact the author at the following address:

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