

Cole, E.C., D. L. Franke, K. E. Leese, P.D. Dulaney, K. K. Foarde, D. A. Green, R. M. Hall, and M Berry. Indoor Environment Characterization of a non-problem building: Assessment of Cleaning Effectiveness. Research Triangle Report Number 94U-4479-014, Research Triangle Institute, Research Triangle, North Carolina. 202 pages. March, 1994.

This study characterized the indoor environment of a multi-floor, multi-use, non-problem, non-complaint building through long term sampling for a variety of substances. Sampling was done for biological, chemical, and particulate pollutants. The study further assessed the effects of cleaning on indoor air quality. The study protocol included five months of "baseline" environmental measurements, a rigorous cleaning of the entire building, and subsequently, seven months of environmental monitoring after implementation of an economically-feasible, standard cleaning program. Air, surface, and dust data from monitoring prior to the cleaning program were compared with those obtained while the improved housekeeping program was in place to assess the effectiveness of the cleaning program on the indoor environment. Correlations between pollutants and other environmental factors are also presented. This work involved a collaborative effort by the Research Triangle Institute, the US Environmental Protection Agency's Environmental Criteria and Assessment Office, the University of North Carolina at Chapel Hill (UNC), the building service contractor, and commercial cleaning and carpet industries, and their suppliers.

The study concluded that an organized cleaning program based upon environmental management principles and fundamental environmental protection guidelines contributed to improved indoor air quality through reduction of total suspended particles, total volatile organic compounds and culturable bacteria and fungi.