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BUILDING SERVICES CONSULTANTS
Mechanical • Electrical • Indoor Environment

October 07, 2003

M. J. Nicchio, Director
TRUST for a Smoke-Free Texas
701 Brazos Street
Austin, TX 78701

Dear Mr. Nicchio:

This letter is a response to the questions raised in an email I received from Robin Hobart related to a letter dated September 24, 2003 from David Lurie, Director of Austin/Travis County Health and Human Services. In this letter, Mr. Lurie offers options for amending Austin's current smoke free ordinance. Specifically, the third option would except a restaurant bar area that is fully enclosed and separated from the nonsmoking areas and mechanically ventilated to prevent smoke from entering the nonsmoking dining areas.

As requested, I offer my expertise and opinions that are based on my professional practice and as immediate past chair of the Sources and Ventilation Rates subcommittee of Ventilation for Acceptable Indoor Air Quality, Standard 62, promulgated by the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE). Following are the questions posed by Ms. Hobart and my responses.

Question 1: What are the specifications for designing, constructing, maintaining and operating such a room?

I am not aware of standard specifications at this time for such a room. However, a good design would include, in my opinion, well-sealed solid walls up to the structural slab above, sliding doors with weatherstripping and automatic closing mechanisms, separate ventilation systems, ducted return air, exhaust to the outside, pressure differences maintained for some time after operating hours and signs to notify occupants. Some of these requirements may be contained in an Addendum to Standard 62 that is forthcoming from ASHRAE. For the latest public review version of this Addendum (62g), contact Ms. Claire Ramspeck at 404-636-8400 or cramspeck@ashrae.org. A very informative recent article describes experience and recommendations based on a study of actual smoking rooms: Alevantis et al, "Designing for Smoking Rooms," *ASHRAE Journal*, July 2003, pp. 26-32.

Question 2: In practice, what track record do these types of rooms have vis a vis sequestering smoke from non smoking areas?

In practice, the best smoking rooms, with all of the features that we now know are necessary, are non common. For instance, sliding doors with automatic closers as described above are rare. In the most comprehensive analysis of which I am aware, only 7% of specially designated smoking

areas had even minimally effective controls, namely, physical separation, exhaust to outside and no air recirculation. Even though the controls were effective in reducing contaminant levels in the non-smoking areas, they were not reduced sufficiently to achieve de minimus risk. Some of this information is contained in: Liu et al., "A Survey of Environmental Tobacco Smoke Controls in California Office Buildings", *Indoor Air* 2001; 11: 26-34, Munksgaard, Denmark.

Energy and maintenance cost of systems is more expensive when the above separation is provided. Furthermore, when a kitchen with its own exhaust systems is adjacent to the bar, this creates additional practical difficulties and may result in the kitchen workers also being exposed to higher levels of secondhand smoke.

Question 3: How can one monitor these rooms to determine whether they are meeting their purpose of preventing smoke from entering non smoking areas (i.e., what types of equipment would be required, what types of compounds would one test for, are there any existing protocols for conducting this type of testing)?

Reliable measurement of secondhand smoke is confined primarily to research studies and is not common in the commercial marketplace. Test apparatuses cost thousands of dollars and require skilled technicians or researchers. Some have tried to use simplified measures such as total respirable particulates (RSP), nicotine or carbon monoxide for commercial application, but these are not reliable markers for secondhand smoke. There are three fundamental problems with such monitoring: no accepted marker compounds for secondhand smoke, no acceptable guideline levels for these compounds and no standardized measurement techniques for determining the airborne concentrations for many of these compounds.

Question 4: Is there any information about the contaminant levels in such rooms, and their health effects on occupants (workers and patrons)?

None of the above techniques are intended to improve, in any way, the contaminant levels and health effects in the smoking areas themselves. There is a plethora of data showing short term and long term health effects of exposure to secondhand smoke. One recent comprehensive document summarizing this is: National Cancer Institute, *Health Effects of Exposure to Environmental Tobacco Smoke, Report of the California Environmental Protection Agency: Smoking and Tobacco Control Monograph no. 10*. A paper that specifically addresses short term improvements in health of bartenders is: Eisner et al, "Bartenders' Respiratory Health After Establishment of Smoke-Free Bars and Taverns", *JAMA*, December 9, 1998-Vol 280, No. 22, pp. 1909-1914.

Question 5: Are there any recent developments that we should be aware of with respect to these issues?

Please see the above publications to which I have referred, the most recent being published in July 2003.

Summary

Separation of smoking areas does not protect the workers and occupants within the smoking area. When separation is properly done (and this is not common), it can reduce the exposure of occupants in the nonsmoking areas, but there is no quantitative assurance that the remaining exposure meets any current health standard or goal.

Please contact me if I can be of further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read 'Lawrence J. Schoen', written over the word 'Sincerely,'.

Lawrence J. Schoen, P.E.
Principal Engineer