Natural Ventilation
While operable hospital windows are primarily intended for emergency use in the case of fire, there are other situations in which patients, nurses or other staff may desire natural ventilation. Dusty smells or smoke may need to be quickly "aired out," a power failure or equipment failure may temporarily disable fans or a breath of fresh air on a pleasant day may simply be "just what the doctor ordered." Even when windows have access control locking devices, keys are commonly available at the nursing station. With recent reports of "sick building syndrome," indoor air quality is certainly a topic of concern for anyone in building management or the construction industry.

Daylighting
In other building types, studies have documented the substantial effects that natural daylight and ventilation have on office worker productivity and well-being, as well as student learning. There is no reason to doubt that a similar phenomenon would be noted in patient recoveries. Recognizing this, the AIA's 2001 Guidelines for Design and Construction of Hospital and Health Care Facilities paragraph A7.2.3 states, "Windows are important for natural ventilation..." as for meeting fire safety code requirements.

Cleaning
Certain operable windows are designed so that maintenance personnel can clean the outside glass surface from the interior. Natural air flow and ventilation present some difficulty. This can increase patient satisfaction, even if they never actually open the window.4

Energy Savings and Environmental Impact
In many parts of the U.S., natural ventilation offers a seasonal opportunity for air-conditioning energy savings if included as part of the HVAC design, balancing and operating plan. Recognizing their sustainable design benefits, the U.S. Green Building Council LEED™ Rating System awards points for operable windows as part of the "Ventilation Effectiveness" and "Controllability of Systems" credit categories.

An Architect's Perspective
Registered Architect Gene Wells of Marshall Bredman & Associates, a leading national health care design and construction firm, offers the following. "In today's hospital, huge efforts are being made to create a healing environment for patients and their families. A non-institutional approach lessens the stress level for people who already have too much stress and lends to better outcomes. Patient's rooms, in particular, are often designed to reflect local culture, connect with nature or create a hotel-like environment. Operable windows can be an integral part of this atmosphere."

She adds, "The issue of control is also important. Operable windows can give patients a small controllable piece of an environment in which they may feel like they have very little control. This can increase patient satisfaction, even if they never actually open the window."

A Balanced Approach
As a standard-setting organization, AAMA recognizes that due to the general nature of any code or standard, it is difficult to prescribe whether operable or fixed windows are the appropriate choice for all hospital applications. However, a balanced assessment of operable windows versus "break out" fixed glazing or mechanical emergency ventilation is in the best interest of the building team, owner, staff, occupants, and local protective services, especially in a hospital environment.

Code Change References

AIA 1996b: "Patient rooms or suites in new construction intended for 24-hour occupancy shall have windows or vents that can be opened from the inside to vent noxious fumes and smoke products and to bring in fresh air in emergencies. Operation of such windows shall be restricted to inhibit possible escape or suicide. Where the operation of windows or vents requires the use of tools or keys, these shall be on the same floor and easily accessible to staff. Windows in existing buildings designed with approved engineered smoke control systems may be of fixed construction."

AIA 2001: "Operable windows are not required in patient rooms. If operable windows are provided in patient rooms or suites, operation of such windows shall be restricted to inhibit possible escape or suicide."

NFPA 1985: Every patient sleeping room shall have an outside window or outside door arranged and located so that it can be opened from the inside to permit the venting of products of combustion and to permit any occupant to have direct access to fresh air in the case of emergency. The maximum allowable all height shall not exceed 36 in. (91 cm). - Here shall be located on the floor involved...accessible to staff."

By NFPA 1997, this specific requirement for operable windows had been removed, but the commentary below had not yet been added.

NFPA 2000b: Paragraphs 18.3.8.1 and 19.3.8 require an outside door or outside window in each room where patients sleep. The window is not required to be operable. A maximum allowable all height of 36 in. (91 cm) is specified for new health care occupancies... All height is limited in new construction to ensure access to the window should it ever need to be used for ventilation purposes...."
In some cases, laminated acoustical glass may also be used to provide sound control. It is assumed that fixed glass could be broken out in case of emergency or a conflict. The practical side of glass breakage and removal is not realistic. While complete glass removal might appear to be a faster way, the introduction of added oxygen can be stopped. Since operable windows can be stopped, the flow of oxygen exacerbating the fire can be stopped.

Broken Glass - Injury hazards may exist when glass is broken out of a window. The sheltered side of a broken window can remain in the opening and the sharp edges pose a serious hazard to people on the inside and outside. The practical side of glass breakage and removal is not realistic. When professional emergency responders, with special tools and training, may meet fewer challenges when attempting this, it is typically a member of the nursing staff who is first on the scene and may have difficulty breaking the glass in commercial windows.

Glasses Breakage Challenges

Glass Thickness - To ensure structural integrity, 6 to 12 mm or thicker glass is typically specified for non-residential applications. Even non-heat-treated annealed 5/8” glass is difficult to break unless employing a heavy object or other tool with a sharp, tough edge. Panic confusion, integral Venetian blinds, window coverings and reduced visibility in a smoky room all add to the difficulty.

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