



HOSPITAL HARDWARE PROBLEMS

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The problem of hospital and nursing home hardware can be summed up by noting the difference between hardware sometimes desired and what the authority having jurisdiction requires.

CODE REQUIREMENTS

The responsibility of the conscientious consultant is to keep abreast of all pertinent code requirements. Knowledge of the applicable codes governing a project is a must and, unfortunately, is where many of us have shortcomings. Since we can't be walking encyclopedias and because our profession seems to be getting more complex and broader every day, a good library and the ability to find the information we need quickly is the best answer. In the case of hospitals and nursing homes, the latest revisions of the following documents (or the applicable editions used in the jurisdiction) must be consulted:

1. The local building code governing the project.
2. The National Fire Protection Association NFPA 101 *Life Safety Code*.
3. NFPA 80 *Standard for Fire Doors and Windows*.
4. Other NFPA Standards as applicable to the project. (Users of the *Uniform Building Code* would generally consult *Uniform Standards* based on NFPA Standards.)

Codes are written by the sponsoring organization and are the results of public proposals, committee deliberations and final adoption by the organization membership. They are in a constant state of revision and are republished periodically. In the case of model codes, they may be adopted by jurisdictions with or without amendments.

If the hospital or nursing home is the recipient of Medicare funds, the U.S. Department of Health and Human Services (HHS) requires it to be built under the provisions of the NFPA 101 *Life Safety Code*. When it is built in an area where other codes such as one of the model building codes are in force, In the previous Tech Talk on hospital hardware problems (copyright 1971) this statement appeared, "One of these days we will probably be dealing with doors that have an official smoke barrier rating. Patient room doors may be required to have this designation. It may take the form of an Underwriters Label and hardware requirements may again be changed to

compliance to both codes becomes necessary. Conflicts are traditionally resolved by enforcing the most stringent requirements of both codes. Since there were marked differences among the codes, this frequently caused unjustified hardships to the builders of hospitals and nursing homes.

A request addressed to HHS through the National Institute of Building Sciences asked for HHS recognition of the model codes as well as NFPA 101 for hospitals and nursing homes. This request brought about a study by the Board for the Coordination of Model Codes (BCMC) which resulted in recommended revisions to NFPA 101 and the three model codes for the purpose of greater uniformity. This effort was partially successful although there are still differences among the four documents.

A requirement for fully sprinklering new hospitals and nursing homes is expected in the future. It is proposed for 1991 edition of NFPA 101 and is presently required in the *Uniform Building Code*. One would expect BOCA and SBCCI to follow suit.

This, of course, further erodes the position of the automatic closing patient room door. If the non-sprinkler option is removed from the BOCA *National Building Code* and the SBCCI *Standard Building Code*, no code requirement will remain and the use of patient room door control will be in accordance with good practice and the client's wishes.

Trade-offs for sprinklers usually reduce or remove entirely the requirement for fire resistant construction and hence the requirement for fire doors. While hardware must still be supplied for the doors that are no longer fire rated, the type of hardware is frequently different. Push-pull functions are used in lieu of positive latching. In some instances, friction holders will replace closers. **The important thing is to have a door assembly functioning the way the operator of the hospital or nursing home wants and still be code complying.** Positive latching is still required for patient room doors. Positive latching is not presently required for doors in smoke partitions crossing a corridor. Positive latching is still a requirement for all fire doors. Fire doors must still be self or automatic closing. (The only exception to this requirement is for the inactive leaf of a pair of fire doors protecting a room not for habitation.)

SMOKE BARRIER DOORS

conform to this new concept." The authors weren't totally incorrect, just premature. The twenty minute smoke and draft stop door created in the *Uniform Building Code* certainly is the forerunner to what is now called in NFPA 105-M the "Smoke Control Door Assembly".

In 1989 several door companies began a series of tests with Underwriters Laboratories, Inc. to evaluate smoke control door assemblies against criteria found in NFPA 105-M **Recommended Practice for the Installation of Smoke-and-Draft-Control Door Assemblies**. It is reasonable to expect nationally recognized independent test laboratory evaluated smoke control door assemblies to emerge in 1990 or 1991. When they are commercially available, code bodies will probably adopt requirements for labeled smoke control door assemblies in lieu of the present generically described doors.

SPECIAL REQUIREMENTS

Since a hospital is made up of a variety of uses, a good practice is to treat the office areas as an office occupancy, the gift shops as a mercantile occupancy, the auditorium as a place of assembly, and so on. What's left is the hard part, nursing floors, treatment areas, surgical suites, and the rest of the spaces unique to hospitals and nursing homes.

The most neglected items of hardware and also some of the most important for use in health care facilities are door protection plates. Armor plates, kick plates, mop plates, and edge guards really do make a difference. Doors are abused by the use of cleaning machinery, carts, gurneys and other equipment. Contributing to this abuse is a lack of understanding as to the effective use of delayed action door closers. If the consultant analyzes how each door is to be used and if it is apparent that the door will be opened and then something or somebody will be wheeled through the opening, the use of a delayed action closer will contribute to the protection of these doors and to the convenience afforded personnel.

Areas sensitive to locking such as surgical suites, isolation rooms, offices, and so on are normally locked in two ways. If the doors are intended to have a push-pull function when not locked, use dead locks, push-pull plates, closers, and door protection plates. If doors are not intended to have a push-pull function, consider the use of classroom locks instead of office or other functions to assure key control for the person having the keys. This will ensure preventing people not having keys the ability to lock or unlock doors for inappropriate purposes. Protection plates and closers should be added if functionally necessary for the desired result.

If doors are intended to always be locked such as in the case of drug storage rooms, electrical closets, other selected storage rooms, and similar areas, the use of store room function locks is recommended.

Double egress doors in corridors are generally trimmed with hardware in two ways. If these doors are part of a horizontal exit, they must be equipped with fire exit hardware and closer-holder-release devices which are automatic closing upon smoke detection. If they are doors in a smoke barrier, latching is not required, but automatic closing is still a requirement. Protection plates are still recommended even though the doors

are normally open.

Overhead stops are probably used in health care occupancies more than in any others. This because floor stops are considered by most of us to be inappropriate. Floor scrubbing equipment and the tripping hazard afforded are the basis for this opinion. Therefore, it is suggested that when wall stops are not practical, overhead stops be used.

Special frame and door conditions are frequently encountered and while they may not affect the specification, the hardware schedule should contain details reflecting these conditions.

Raised barrel hinges, wide throw hinges, special sizing of protection plates, special closer brackets or arm shoes, special projection of strike lips, and special locations of hardware are all data necessary in the schedule.

ELECTRONICS and SECURITY

When electrically or electronically operated hardware is used, voltage requirements and coordination with other trades is essential both in the specification and the scheduling process.

Power operated doors are used extensively in hospitals. The main entrances, ER entrance and surgical suite entrances are all typically so equipped. Frequently these doors are locked during certain hours of the day. Coordination of any electronic locking devices, key switches, and the tie-in to the power operator is required. Since power operated doors are almost always under service contracts, the hardware supplier is usually not the supplier of the door system, but the coordination is still essential.

While hospital requirements usually dictate that the consultant focus most of his attention on the safety, durability and convenience of the hardware, some unique security problems must be considered. By their nature hospitals are open 24 hours a day, 365 days a year, giving access to anyone.

Conventional mechanical hardware can satisfactorily meet the demands of external security during the night hours by limiting access to one or two entrances. These entrances can be controlled during the minimum staffed hours through electronic locking means that permit access only after identification and can be monitored from a remote point. This may be in conjunction with a closed circuit tv or from behind an interior pair of doors. Magnetic locking devices, electric strikes and electronic locks are available to suit these conditions and can be furnished as part of the overall door security system.

Of particular concern is how pharmacies and drug storage areas are secured. The exposure is great, not only due to the open door policy of a hospital that admits great numbers of strangers daily, but also from its large support staff which is subject to above average employee turnover.

In addition to the usual lock and keying requirements of such

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areas, a second separate system of securing these spaces should be provided. Such a system should include a local alarm, possible with remote monitoring at the switchboard that is subject to control by a minimum number of people. The control of this system should be separate from the building master key for optimum security, and should employ the use of keys not readily duplicated, or by other means of coded entry, such as push-button locks, electronic, or mechanical.

Narcotics themselves are stored in secured cabinets within the pharmacy, but other things such as syringes, scales, formulas, prescription records, non-narcotic drugs, etc. must also be protected.

Questions frequently arise as to the intended use of unusual openings. The consultant should consider the value of a

coordinated conference with the architect and owner. This will provide for the opportunity to specify the desired functions rather than ones that inhibit the intended use of the openings.

A CHALLENGE

The hospital is without a doubt the most challenging building the consultant will encounter. The above are only examples of the diverse requirements to be satisfied if the consultant is to meet an assumed obligation to the client.

Some of the foregoing remarks can, of course, be applied to buildings other than hospitals, but it can be readily appreciated how important these new developments are and will be in hospital work.



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