

doors & hardware

MARCH 2014

ADVANCING LIFE SAFETY & SECURITY SOLUTIONS



HOSPITALS/HEALTHCARE FACILITIES

THIS MONTH

D&H looks at the latest products and technology being used to ensure life safety and security within hospitals and healthcare facilities.

A PUBLICATION OF
THE DOOR AND HARDWARE INSTITUTE



Unique Needs of Behavioral Healthcare Door Hardware

BY JAMES
M. HUNT,
AIA



BEHAVIORAL HEALTHCARE facilities present a number of unique challenges for door hardware specifications. The Joint Commission (TJC) sentinel event reporting system (which is voluntary and represents only a small portion of actual events) recorded 473 inpatient suicides from 2008 through 2012. This is an average of 94.6 deaths by suicide per year for these five years. Previous TJC studies have shown that 75 percent of inpatient suicides on psychiatric units are by hanging and that many of those involve doors. In addition, patients can barricade in-swinging doors to delay staff entrance to rooms and allow time for undesirable activities to take place.

Terms such as *anti-ligature*, *tamper-proof*, *suicide prevention*, etc. are commonly used in literature and advertising of products that have been specifically developed for behavioral healthcare facilities. However, the use of these terms may create an implied warranty that there is no way a patient will ever be able to use the product in a way that will result in self-harm or harm to others. But these patients are creative and inventive in ways to circumvent the industry's best efforts. It is highly recommended that the word *resistant* in its various forms be substituted for the more absolute terms.

There is no "right" answer for any given situation. Every facility will have its own acceptable level of risk tolerance for many different conditions. The level of acceptable risk will often depend on the past experiences that key staff members have acquired working in these environments and may differ substantially with the acceptable limits expressed by staff from other facilities.

Other considerations are the type of patients being served, which can vary widely in diagnosis, age and acuity. Staffing patterns, facility culture and whether self-pay patients are being sought are a few more of the many other options that must be considered in making the decisions about what hardware should be specified for a particular facility.



Ligature-resistant lever handle lockset

Photo courtesy of Securitech

No product is without some risk. The factors mentioned here must be considered in consultation with the hospital staff to determine which option is best for every particular location within the facility.

This information has led to the development of specialized locksets, hinges, emergency strikes, over-the-door alarms, smoke and fire seals, closers, fasteners and other items to address these issues. Each of these is discussed in detail in this article.

Locksets

There has been a lot of emphasis in recent years on making behavioral healthcare facilities look less institutional. This is especially important for items that the patients touch and use on a regular basis in addition to being part of the visual environment. Locksets are the primary hardware items that are touched and operated regularly by patients.

The most typical type of locksets that are also ligature-resistant are the lever type with conical escutcheons designed to be free to move in both directions when locked. The motion needed to operate these is exactly the same as a commonly used lever handle lockset, and they look and feel very similar. The shortcoming of this type of hardware is that a ligature can be looped around both the inside and outside handles around the strike edge of the door.

Several types of handles have been developed that avoid this issue. Standard push/pull paddle-style handles also provide looping opportunities and also strongly reinforce a hospital appearance. Handles have been developed for this type of hardware that reduce the ligature risk but still retain the functionality and appearance of hospital hardware.

Still other devices are now available that require non-standard

motion and unusual appearance, both of which are not desirable. The decision regarding which type of lockset to use will depend on the variables discussed thus far. It is preferred that all patient room-to-corridor doors (as well as most other doors on inpatient units) be lockable to resist patients being able to get into unassigned or unoccupied rooms.

The latch bolt can be a risk by itself. It is difficult to avoid this risk. Some companies have tapered latch bolts that will retract if patients attempt to use them as ligature attachment points. This can be effective but eliminates the deadlocking feature and makes it easier for patients to gain unauthorized access to rooms that are intended to be secured.

Until recently, it was unheard of to allow patients to lock themselves into their rooms. This has changed due to concerns about male patients sexually assaulting female patients on units that house both genders. A “bedroom privacy” lockset has been developed that provides patients with this level of privacy and still allows staff ready access to the rooms. The use of this hardware is currently being extended to Post-Traumatic Stress Disorder patient rooms and may be adopted for use on other types of patient rooms in the future.

Hinges

The standard 1½ pair of butt hinges should not be used on any door that patients will pass through. The reason for this is that, with the door open, a patient can tie something around the barrel of the hinge to use to commit suicide. Doors that patients do not pass through can



Double-acting continuous hinge

use these hinges as long as hospital tips are provided on all hinges that have their barrels exposed in patient-accessible areas, including corridors.

Continuous hinges are a better choice and come in two basic types: pin and barrel, and geared. The pin and barrel type always has a large slot at the top where one leaf section does not attach to the barrel. This slot provides the opportunity for patients to tie a knot in a sheet, sleeve of a shirt or some other object, place it in the slot, and use it as a hanging device. Therefore, use of pin and barrel-type continuous hinges in any patient-accessible area is discouraged. Geared-type continuous hinges can provide less risk if the gear extends the entire length of the hinge (to resist patients slipping a ligature behind the cover), the top is tapered in hospital tip fashion, and all resulting openings are plugged.

Center pivot hinges are hazardous because the top pin makes an easily-used ligature attachment point. Offset pivots have the same issues as butt hinges.

Over-the-Door Alarms

All tight-fitting doors have pinch points that create ligature attachment opportunities. The easiest and most frequently used is the top of the door. Three companies have developed pressure-sensitive strips that can detect downward pressure on the top of the door. One of these also can add light beam sensors for the top and bottom of the door if desired. These can be useful in detecting unwanted activity, and their use and acceptance appears to be increasing.

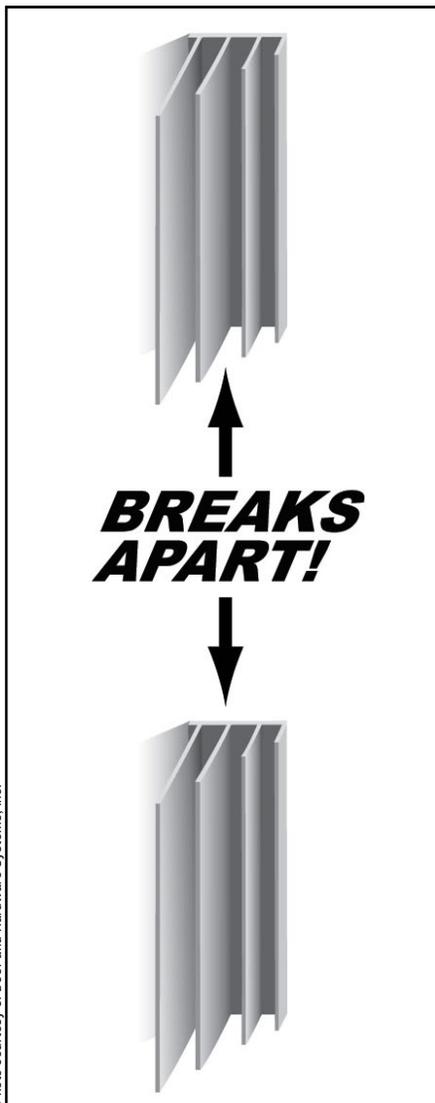
Barricading

All doors that swing into rooms where patients will be have the potential for barricading. Building and fire codes often require that these doors not swing into the corridor unless recessed back from the corridor wall. These recesses create alcoves and blind spots that make observation on the units difficult. There are several ways to reduce this risk using door and hardware combinations.

Double-acting continuous hinges are one good option that often can be done without needing to replace the door frame. There is a companion emergency stop that also has a continuous hinge that allows the full-height lockable stop to swing out of the way to allow the door to swing the other direction.

An unequal width pair of double egress doors can be provided with the larger, active leaf hinged to swing into the room and the smaller leaf secured only with a deadbolt that can swing into the corridor when an emergency occurs. These can be done either with or without a vertical mullion between the doors. Not using the mullion has the advantage of providing a larger clear opening when both doors are open. Using the center mullion results in a more secure and quieter operation, which is helpful for middle-of-the-night room checks.

Another barricade-resistant solution is the emergency release hinge, which is an entire door, frame and hardware assembly that requires that bolts be removed from the hinge jamb to allow the door to be removed entirely in an emergency. This requires the use of tools and the ability to control the weight of the door itself.



This frame seal maintains the integrity of the seal but breaks away into eight-inch sections if removed.

Gasketing

Doors in some situations may be required to have smoke gaskets by building or fire codes. When this occurs, it is suggested that gaskets be provided that do not require a metal attachment strip and long pieces of flexible gasket material. Patients might be able to remove the metal strip to use as a weapon, and long strips of flexible gasket material can be used as a ligature. It is preferred that adhesive-applied gasketing that is factory scored to break into eight inch-long sections be specified.

Closers

Where door closers are required by code, it is preferred that they either be concealed-type or parallel arm closers. It is typical to not locate closers on the corridor side of doors, but this convention should be altered for behavioral healthcare facilities. Surface-mounted closers should be located on the side of the door with the least amount of patient activity.

Corridor doors to service rooms that patients will not use (such as clean and soiled utility rooms) should have the closer mounted on the inside of the room, in normal fashion. However, doors to patient activity rooms, interview rooms and other rooms that patients will use should be mounted on the corridor side.

Fasteners

All fasteners in the form of screws and other attachment devices that will be accessible to patients in the final assembly must be of a tamper-resistant type. There has been much discussion about what constitutes

a “tamper-resistant” fastener. Some used to feel that a Phillips head-type screw was sufficient for these applications. That opinion seems to be waning throughout the industry.

The most commonly used types now seem to be either pinned hex (Allen) or pinned star (Security Torx®) head screws. These are similar to the more common hex and star screws but have a pin in the center that resists the use of typical tools for removal. Another commonly used type is the spanner head (snake eye) fastener, which has been used for many years. However, one facility recently reported that a patient had discovered that the ears on a Monopoly game piece dog fit these holes perfectly. Others have said that patients have been known to put their hands inside hospital-issued socks with non-slip pads on the bottom and remove any type of tamper-resistant fastener by pressing the non-slip pad on the screw head with their thumb from inside the sock. Again, patients will find ways to circumvent whatever solutions we may offer.

Summary

Behavioral healthcare facilities present many unique challenges that require different solutions from those typically provided for general hospitals or other building types. Fortunately, a number of manufacturers are now providing specialized items that directly address these issues. Care must be taken to make sure that the products chosen all work together to provide the owner with a total solution that is in keeping with the needs of the patients to be served, the staff who will be treating them and the hospital's tolerance for risk.

More information on the products referred to, along with their manufacturers' contact information, is available in the *Design Guide for the Built Environment of Behavioral Health Facilities*, published by the National Association of Psychiatric Health Systems, available free of charge at www.naphs.org. Building a totally risk-free environment that is comforting, welcoming and non-institutional is probably not possible. The best that can be done is to make the patients work really hard to defeat our best efforts.

About the Author: James M. Hunt, AIA, is a practicing architect and facility management professional with more than 40 years of experience. He is president of Behavioral Health Facility Consulting, LLC, an organization that consults with behavioral health facilities and architects designing them on improving patient and staff safety. He is also a principal of Behavioral Healthcare Architecture Group. Hunt is co-author of the *Design Guide for the Built Environment of Behavioral Health Facilities*. He can be reached at jim@bhfc.com.

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