BEHAVIORAL HEALTH DESIGN GUIDE
Formerly:
Design Guide for the Built Environment of Behavioral Health Facilities

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Includes REVISED
Patient Safety Risk Assessment Tool
to align with The Joint Commission’s
Recommendations

Behavioral Health Facility Consulting, LLC

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The hospital plans activities to minimize risks in the environment of care.

Risks are inherent in the environment because of the types of care provided and the equipment and materials needed to provide that care. The best way to manage these risks is through a systematic approach that involves proactive evaluation of the harm that could occur. By identifying one or more individuals to coordinate and manage risk assessment and reduction activities—and to intervene when conditions immediately threaten life and health—organizations can be more confident that they have minimized the potential for harm.

The hospital manages safety and security risks.

Beginning in March 2017, the Joint Commission is emphasizing assessment of ligature, suicide, and self-harm observations in psychiatric hospitals and inpatient psychiatric patient areas in general hospitals. A March 1, 2017, Joint Commission Online article details specific steps surveyors will take during on-site surveys to document all observations of ligature or self-harm risks in the environment. Each observation of a ligature or self-harm risk will be considered a requirement for improvement (RFI).

Joint Commission Online
March 1, 2017

“Listen to the patients; they’ll tell you what you need to know.”

J.J., Safety Officer

Greystone Park State Psychiatric Hospital

New Jersey
In an effort to keep up with the rapid increase in the number of products available for use in behavioral health facilities, this document will be updated frequently. The date of each edition is on the cover and at the bottom of each page of the document.

Readers are urged to check: www.bhfcllc.com whenever referring to this document to assure the latest information is being accessed.

EDITION 8.0

This edition has been heavily revised and edited since the last edition. Therefore, text that has been revised since the last edition is shown in blue, as has been our practice in the past.

EDITION 8.1

The Joint Commission has released some FAQs that have caused us to revise Levels of Risk definitions beginning on page 13. Therefore, we felt it prudent to issue this revision in an attempt to avoid confusion. There have been a few other minor revisions, corrections and additions to the previous edition. Text that has been revised since the last edition is shown in green.
INTRODUCTION

This document is intended to address the built environment of the general adult inpatient behavioral health care unit. Additional considerations that are not addressed here are required for child and adolescent patients, patients with medical care needs, dementia patients, and some patients with diagnoses such as substance abuse and eating disorders.

This document is not a replacement for regulatory requirements, but rather augments them to detail practical means of protecting patients and staff. It is intended to represent best current practices, in the opinion of the authors. It is not intended to represent minimum acceptable conditions and should not be interpreted as establishing a legal "standard of care" that facilities are required to follow.

PLEASE NOTE:

Product information included in this document is intended for illustration of one or more specific items that are deemed appropriate for use in this type of facility. Comparable products by other manufacturers that meet the same design criteria may be substituted after careful comparison.
A WORD FROM THE AUTHORS

The Design Guide continues to be based on our experiences in the field as operators, designers, consultants, and surveyors. Our goal is to share what we have seen that is working and what we have seen that has not worked. Since the document was first electronically published by the National Association of Psychiatric Health Systems (NAPHS) in 2003, we have received and welcomed countless suggestions, recommendations, and comments from users of the Design Guide, which continue to inform and lead us to new discoveries. We are grateful and humbled by how well our suggestions have been received and that they have inspired others to think of new solutions to the inherent challenges of the behavioral health, built environment.

We hope this edition of the Behavioral Health Design Guide (formerly the Design Guide for the Built Environment of Behavioral Health Facilities) will meet the expectations of and prove useful to the designers, operators, and clinicians who are entrusted with both the care of behavioral health patients and with the environment of care in which those people are cared for and treated.

As always, we introduce this edition with the same reminder we used to introduce the inaugural edition in 2003: “While a safe environment is critical, no environment of care can be totally safe and free of risk. No built environment—no matter how well designed and constructed—can be relied upon as an absolute preventive measure. Staff awareness of their environment, the latent risks of that environment, and the behavioral characteristics and needs of the patients served in that environment are absolute necessities. We also know that different organizations and different patient populations will require greater or lesser tolerance for risk; an environment for one patient population will not be appropriate for another. Each organization should continually visit and revisit their tolerance for risk and changes in the dynamics of the patient population served.”

As in earlier editions, we have highlighted products we have found to be both safe and able to withstand the rigors of use in the behavioral health care environment. However, inclusion or exclusion of a product does not indicate endorsement or disapproval of that product, nor does it suggest that any product we identify is free of risk. As well, there may be equivalent products available; all facilities should continually look to the marketplace to find products that are safer and more cost-effective.

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SafetyLogic Systems
SHARE YOUR BRIGHT IDEAS

A continuing feature in this updated edition is the inclusion of Bright Ideas, which are indicated by the graphic shown at the left. These are applications that we have thought of, or that have been suggested by readers, that do not require the use of any specific product but make use of readily available items in creative ways to improve the safety of behavioral health units. Most of these Bright Ideas can be implemented by maintenance staff at nominal cost. We thank those who have contributed these ideas and information on new products. We encourage this kind of input and invite feedback from you, the readers. With your help, this can become a compilation of the best thinking of the industry. We promise to include more of your Bright Ideas in the future.

ACKNOWLEDGMENTS

We want to express our appreciation to the following professionals who have shared their insight and experience with us and helped make this edition more helpful to other readers:

Larry Denoyer – The Menninger Clinic
Steve Lindquist – Avera McKennan Behavioral Health Services
Tom Hess – Sheppard Pratt Health System
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Tom Ferrel – Systems West Engineers
Steven Shilts, RN – La Jolla Veterans’ Medical Center
Tom Loats – St. Joseph Hospital
Carter Wright – CWC Corporation
Ken Haber – Hackensack Meridian Health
A WORD FROM BHFC

While The Design Guide for the Built Environment of Behavioral Health Facilities (Design Guide) addresses the built environment for adult inpatient behavioral health care units and remains co-authored by James M. Hunt, AIA, Founder and Senior Consultant of Behavioral Health Facility Consulting, and David M. Sine, DrBE, ARM, CSP, CPHRM, president of SafetyLogic Systems. As the Design Guide continues to evolve, we are pleased to be joined by Kimberly N. McMurray, AIA, EDAC, MBA who is the Principal of Behavioral Health Facility Consulting, LLC. She brings an architectural career dedicated to healthcare design, including a period of being on staff at a major academic medical center. She is currently immersed in the daily contact with organizations and designers engaged in the process of navigating through today’s complex behavioral health environments.

The evolving Design Guide was moved to its former home with the Facilities Guidelines Institute or FGI to its present home on the Behavioral Health Facility Consulting, LLC (BHFC) website, www.bhfcllc.com in 2018. We found this move necessary in order to preserve the independence of the Design Guide and, through affiliate relationships, to provide even more organizations and their members access to a document that addresses leading practice design challenges of the built environment for adult inpatient behavioral health care units.

Some of the elements of the Design Guide for designing behavioral health facilities, such as the Patient Safety Risk Assessment tool, will continue to appear in the FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities. The Design Guide provides much more detail and leading practices for protecting patients and staff as identified through the authors’ years of practice in the field. The Design Guide is not intended as a replacement for regulatory requirements nor to be employed as a legal “standard of care.” Its content is provided to augment the fundamental design requirements for behavioral health facilities and to help providers and design teams develop physical environments that support safe and effective behavioral health services.

As always, we should remind readers that the Design Guide does not discuss the additional concerns that must be addressed when designing behavioral health facilities for child and adolescent patients, patients with medical care needs, geriatric patients, or some patients with diagnoses such as substance abuse and eating disorders.

Information is included about products that have been found to be more safe for use in the behavioral health built environment but is in no way a complete list of products available that may be appropriate, while recognizing that no product is entirely without risk. We should also point out that the editors vigorously resist offers to monetize the Design Guide or be compensated by enthusiastic vendors.

The Design Guide is updated periodically, and while we trust you will find the latest changes helpful, our goal is to provide updates more frequently than has been possible in the past, so please return to these pages occasionally to make sure you are referring to the most current edition.

Thank you for your continued interest in and use of the Behavioral Health Design Guide.

Kimberly N, McMurray, AIA, EDAC, MBA - Principal
James M. Hunt, AIA - Founder and Senior Consultant
GENERAL COMMENTS

1. Space Planning Considerations

A. Behavioral health units and facilities should be designed to appear comfortable, attractive, and as residential in character as possible. The focus on patient and staff safety has often pushed the aesthetics of these units toward the appearance of a prison environment. To better meet the needs of patients, the final design must avoid an “institutional look” while meeting the array of applicable codes and regulations and addressing the therapeutic and safety needs of patients and staff. The challenge is to strike a balance between the safest possible therapeutic environment and a non-institutional appearance that is correct for the unique conditions that exist in each facility.

B. Nurse stations should provide the least acceptable barrier between staff and patients. This goal is sometimes felt to conflict with staff safety concerns as patients may be able to reach or jump over counters, but some facilities have found ways to design nurse stations that protect against these actions without preventing conversation and exchange of objects between staff and patients. HIPAA (Health Insurance Portability and Accountability Act of 1996) privacy regulations can make use of an “open” design challenging because patient records, electronic or otherwise, must be protected from view by other patients, visitors, and unauthorized staff. However, advancements in electronic medical records have somewhat reduced the need to locate all charting-related activities and spaces in the area behind the nurse station. Since the electronic “chart” can be accessed from many locations, the area around the nurse station can often be used for more patient-centered activities. When a more open nurse station is achieved, other areas where clinical staff can discuss patients without being overheard and appropriately secure storage for charts and patients’ valuables are needed.

C. Location of gathering areas for patients near the nurse station is encouraged because patients often congregate by the nurse station to socialize. It is far better to plan for this behavior and accommodate it in the original design. Such gathering areas should include comfortable seating and places for conversation, card or board games, and other quiet activities that will not distract staff working in the nurse station. Television sets, CD players, etc. should not be included at these locations.

Many facilities are now experiencing issues, especially with younger patient populations, regarding use of personal electronic devices (e.g., iPods, MP-3 players, and similar devices). Patients say these electronics help keep them calm, but the wires on the earphones can be hazardous. The decision about how to handle this potential hazard is just one of many decisions that behavioral health organizations need to weigh to determine the level of risk they are willing to accept for the perceived benefit. It should always be remembered that a patient who has been assessed as safe to use a player may set it down where another patient may pick it up to gain access to the wires.
D. **Chart rooms and other staff areas should be located so staff members can have conversations regarding patients and other clinical matters without being overheard by patients or visitors.** Teaching hospitals that have a large number of residents and/or students making rounds will need larger spaces for confidential conversations. The expanded use of electronic medical record technology is continuing to change the needs and configurations of these spaces.

E. **Facilities for medication distribution should support the organization's practices but allow for flexibility.** Medication management has evolved over the years from patients lining up at a window at designated times to staff taking medications to patients wherever they are on the unit. While the trend is strongly toward the latter, some facilities prefer the former or some variation of the two. This practice should be clearly defined in every facility’s functional program and safety risk assessment. Flexibility should be designed into the built environment to allow for future changes in how this critical function is provided. Medication rooms and/or zones should also be provided in accordance with the requirements of the FGI Guidelines for Design and Construction of Hospitals, 2018 edition and all other applicable codes, standards and regulations.

F. Where possible, **locate service areas (such as trash rooms and clean and soiled utility rooms) so they are accessible from both the unit and a service corridor.** This eliminates the need for environmental staff servicing these rooms to enter the treatment areas of the unit and possibly disturb patient activities. All doors to these rooms must be kept locked at all times.

G. **Traditional nurse call systems for patients to request assistance from nursing staff are not required** in behavioral health units. Significant new developments in duress alarm systems greatly improve safety for staff who find themselves threatened by patients. Sensors located in all patient-accessible areas are activated using a small device that the staff members wear. Staff activate the alarm when they feel threatened and want other staff to come. Different alarm products annunciate in different ways, but many provide the exact location of the staff member activating the alarm.

H. **All electrical outlets in patient rooms should be tamper-resistant, hospital-grade units on ground-fault interrupted circuits.** The breakers for these circuits should be located so staff can easily access them without entering patient rooms. This is easy to accomplish in new construction but can be very difficult to achieve in remodeling projects. If receptacles with individual reset buttons are provided, they should be wired so that activation of one receptacle’s breaker does not deactivate the entire circuit.

I. **All electrical circuits with receptacles near water sources (e.g., sinks, lavatories, and toilets) must be protected by ground-fault circuit interrupted (GFCI) breakers.**

J. Where possible, **locate water shut-off valves for patient accessible bathrooms in corridor walls so they can be accessed from the corridor by opening a locked access door.** This has been successfully accomplished during remodeling projects of existing units.
K. Where possible, **locate serviceable parts of patient room HVAC systems where they can be serviced without entering the room.** In new construction, consideration may be given to radiant heating and cooling systems that greatly reduce the need for mechanical devices in patient rooms.

L. **Housekeeping rooms should be large enough to lock away carts when not in use.** All cleaning materials must be locked inside these carts at all times when carts are in patient areas or corridors and not attended by staff.

M. **Smoking areas (if provided) should be outdoors.** Furniture should be securely anchored in place. Provision should be made for staff observation without having to breathe secondhand smoke. No wastebaskets should be allowed in these areas. Indoor smoking is not permitted in most facilities, and many hospitals have gone to smoke-free campuses.

N. At the time of this writing, **the applicable standards** (the FGI Guidelines for Design and Construction of Hospitals and Outpatient Facilities, 2018 edition, published by the Facility Guidelines Institute) **require 100 net usable square feet per private patient room and 80 net usable square feet per patient in semi-private rooms (Section 2.5-2.2.2.2).** All requirements of the FGI Guidelines, NFPA 101: *Life Safety Code*® (2012 edition), and the Joint Commission standards as well as state and local regulations and building codes must be incorporated into project planning.

### 2. Safety

The level of concern for how the design of the built environment affects the safety of patients and staff is not the same in all parts of a behavioral health unit or facility. The level of precautions necessary depends on the staff’s knowledge of the patient’s intentions regarding self-harm and the amount of supervision the patient will have while using that part of the facility. Previous editions of this *Design Guide* have proposed that the level of concern for patient safety in the behavioral health built environment can be stratified into five categories (with five being the highest level of concern). The concept is that some latitude in design, construction, and materials used could be allowed for the lowest level (Level I), described as spaces having no patient access or spaces where patients are under constant supervision (e.g., staff and service areas). Much stricter requirements would need to be met for Level IV, described as areas where patients will be alone for long periods of time such as patient rooms and patient bathrooms. Level V areas where patients with unknown or unassessed risks (e.g., admissions) are present or an area in which highly agitated patients (e.g., seclusion rooms) could be cared for require special considerations that need to be addressed individually. The concept of this level system has been confirmed by independent and peer-reviewed research (Bayramzadeh, S, *Health Environments Research & Design Journal* 2017, Vol.10(2) 66-80).

Many organizations have adopted this approach of assessing levels of concern based on a functional statement of intended use and have agreed on the level of risk for rooms or spaces with similar occupant functions. However, caution is necessary as some rooms or room functions can fit comfortably into more than one category or sit on a blurry boundary between two categories. As well, the categories do not always anticipate every use of every room. This blurriness can result in clinical staff and facility designers basing design
choices on assumptions about the use of a room and its corresponding level of concern that may not meet the actual needs of the stakeholders in an operating environment. For example, a day room may be located within the sight line of a nurse station that “always has staff present.” However, if a patient who can’t sleep is in the day room watching television at 2 a.m. and the only staff member on duty is making rounds, the patient may be “completely alone” for a period of time in a space that may contain hazards.

The authors of the *Design Guide* propose use of a patient safety risk assessment (PSRA) to facilitate conversation between clinical staff and designers regarding patient safety. The PSRA uses a Cartesian matrix to relate an opportunity for a patient to be alone in a space on one axis to a level of risk of self-harm on the other axis. The greater the opportunity for a patient to be alone, the greater the opportunity for self-harm and the greater the caution that should be taken regarding design choices and materials.

Although patient intent for self-harm is often opaque and difficult to assess, in the matrix we have placed “actively suicidal” on the far end of the scale and describe the opposite end as “self-harm not anticipated.” Privacy ranges from close observation (such as “1:1 observation”) on one end of the opportunity scale and the patient “completely alone” on the opposite end.

This risk matrix is informed by Veterans Health Administration longitudinal studies that have identified frequent locations of acts of self-harm by inpatients, Joint Commission data, and Richard Prouty’s seminal work on risk maps. Designers and clinicians, rather than seeking agreement on what is meant by the name of a room, may now seek to agree on the actual or anticipated degree of aloneness or privacy a patient will experience in a room or space (independent of its name), and it is that agreement that will drive design choices for the room or space.

For example, a patient bathroom in which the patient is anticipated to be alone and have privacy would be far along the privacy axis. If that assessment intersects far along the patient intent for self-harm axis, the space should be designed with the attributes of a Level IV space as described in this document. In sum, no matter the name of the room, a high level of privacy warrants a high level of concern if it is anticipated that patients who are actively suicidal (or patients with an unknown or unassessed intent for self-harm) are to be treated or housed in that space. While different products may be used for spaces with risk assessments located in the Level IV quadrant of the risk matrix than for spaces in the Level I quadrant, the higher risk locations do not necessarily need to look more “institutional.”

(continued on page 14)
**Level I:** Areas where patients are not allowed.

**Level II:** Areas behind self-closing and self-locking doors where patients are highly supervised and not left alone such as counseling rooms, activity rooms, interview rooms, group rooms as well as corridors that do not contain objects that patients can use for climbing and where staff are regularly present.

**Level III:** Areas that are not behind self-closing and self-locking doors where patients may spend time with minimal supervision such as lounges, day-rooms and corridors where staff are not regularly present. Open nurse stations should be considered under this Level.

**Level IV:** Areas where patients spend a great deal of time alone with minimal or no supervision, such as patient rooms (semi-private and private) and patient toilets.

**Level V:** Areas where staff interact with newly admitted patients who present potential unknown risks or where patients may be in highly agitated condition. Due to these conditions, these areas fall outside the parameters of the risk map and require special considerations for patient (and staff) safety. Such areas include seclusion rooms, examination rooms, and admission rooms.
The authors believe the use of a tool such as the patient safety risk assessment matrix will facilitate necessary conversations regarding patient safety and design between operators, clinicians, and designers. However, the tool is not intended to predict risk levels in a facility, which the authors believe to be dynamic and non-static. Rather, it is intended to encourage dialog and promote a common understanding of the patients a designed space is intended for and the risks of that anticipated patient population.

Also note that use of the matrix should not be interpreted as a suggestion that patient privacy is not important or is a risk to be avoided. On the contrary, privacy is generally considered desirable in the behavioral health built environment, although it is associated with a risk that should be considered and mitigated through good design where possible.

3. Outdoor Areas

Outdoor areas (e.g., enclosed courtyards, fenced areas adjacent to a treatment unit, or an open campus) are considered to have great therapeutic benefit. Because levels of staff supervision for patients using outdoor areas may vary widely between facilities, or even between different groups using the same space at different times, the need for supervision should be carefully reviewed by management early in a design and construction project. The final design for outdoor areas must respond to the acuity and assessment of the most acute patients using the area and the planned staffing levels for each patient population.

In all cases, careful consideration should be given to exterior landscaping and furniture used by patients. Trees should be located away from buildings, walls and fences to reduce ease of access to roofs or getting over fences. Climbable fences can permit, if not encourage, unauthorized access to windows and roofs or elopement over walls. Shrubbery should be non-toxic and low-growing. Avoid planting shrubbery close together as it can create visual barriers that patients or unauthorized visitors may hide behind. Landscape mulch or decorative rocks that can be thrown to injure staff or other patients should not be used.

All outdoor furniture should be firmly anchored in place. This will prevent the furniture from being moved to create barricades or stacked to allow climbing over fences, into windows, or onto buildings. Many types of commercially available furniture can be anchored or are made of concrete or other heavy materials.

Buildings, walls, or fences may be used to establish clear boundaries and impede elopement to a degree appropriate to the patient population being served. Some behavioral health organizations are comfortable with a perimeter enclosure that is not particularly difficult to climb and simply make elopements a treatment issue if the patients return. Other organizations have a very high need to reduce elopements to the extent possible. Where this is the case, the enclosures may take on a very prison-like appearance. If views to the distance are not required, one approach is to treat the
outdoor areas as meditation gardens with solid masonry walls that have a smooth interior surface and are 12 to 14 feet high.

One facility installed large diameter (22"-24") plastic pipe on top of the wall to make it difficult for patients to get a grip on the top surface. This pipe can be painted to match the color scheme of the building and provides a much less institutional appearance than concertina wire. If views to the distance are desired, “windows” glazed with polycarbonate or security glass may be provided in these walls. These view panels should not have sills or cross bars that could provide toeholds for climbing.

Another option is installation of a fine mesh chain-link fence fabric. This fabric, which comes in a range of sizes down to as small as 3/8” openings, makes the fence more difficult to climb and has openings that are too small for most bolt cutters. When installing such material, fence posts and rails must be strong enough to support the fabric and the wind loading it will add. In at least one instance, a patient successfully climbed a mini-mesh fence, so it is suggested a section at the top be angled inward to further increase the difficulty of climbing at the cost of increasing institutional appearance.

Maximum security fencing, which has a very prison-like appearance, may be selected for some facilities with involuntarily admitted patients. However, use of less institutional-looking solutions should be explored before deciding to use this material.

Where portions of the building walls will enclose exterior courtyards for patient use, these walls should not be easily climbable, especially if they are only one story high. Window sills, rain gutters, and similar features may support efforts to climb walls to gain access to the roof. The exterior surface of all windows patients can access from exterior courtyards must have security glazing, polycarbonate glazing, or security window film, as described under Level II-D.

All areas surrounding patient use buildings, areas where staff will walk or escort patients at night, and courtyards should be well-lighted. Exterior lights should not shine directly into patient room windows.

Parking areas for staff and visitors should be well-lighted and reviewed regularly for design features that encourage personal and property security. While security is generally beyond the intended scope of this document, closed-circuit television monitoring and video surveillance recording of these semi-public areas, where there is no expectation of privacy, should be considered.

All manhole covers, access panels, and area drain grates should be anchored firmly in place to discourage easy removal and use as weapons and to make it difficult for patients to enter the underground piping.
CONSTRUCTION AND MATERIALS CONSIDERATIONS

Each level of concern in the patient safety risk assessment matrix requires increased attention to the built environment to reduce the potential for patients harming themselves or others. The levels are cumulative, and all steps taken for lower levels are also required for the next higher level. For example, all steps recommended for Levels I, II, and III are also recommended for Level IV.

**Level I. Areas where patients are not allowed:**
Comply with all applicable codes and regulations. All unattended service areas should be locked at all times to reduce the possibility of patients entering these spaces. Hardware on doors that connect to a higher Level of Risk (accessible to patients) shall have hardware suitable for the higher level on the side that is exposed on the higher risk.

**Level II. Areas behind self-closing and self-locking doors where patients are highly supervised and not left alone such as counseling rooms, activity rooms, interview rooms, group rooms as well as corridors that do not contain objects that patients can use for climbing and where staff are regularly present:**

Minimize blind spots in corridors where patients cannot be observed from an attended nurse station. All unattended counseling and interview rooms should be locked at all times to reduce the possibility of patients entering these areas. Counseling rooms and interview rooms should have a “classroom”-type lockset that requires a key to lock or unlock the outer handle, but the inside handle is always free.

A. **Floors** – Carpet\(^{255}\) or sheet vinyl\(^{245}\) meeting class A rating should be used. Avoid patterns and color combinations that may appear to “animate” into objects that could contribute to visual misperception by patients of objects that must be avoided or stepped over. Anti-microbial carpet with solution-dyed yarn and moisture-resistant backing generally works well in these facilities and is available from most major carpet companies.

B. **Walls** – Abrasion-resistant and impact-resistant gypsum board\(^{230, 231}\) hung on 20-gauge or heavier metal studs spaced no more than 16 inches on center is typically considered minimum construction for these areas. Sound-deadening gypsum board\(^{232}\) is available to help reduce noise levels from traditional hard services. Consult manufacturers regarding the characteristics of the material determined most appropriate for a particular installation. These products are available from several manufacturers.

A painted finish is preferred because it is easy to repair and the cost of renewing or changing colors to keep up with current trends is relatively low. Also, painted finishes help create a residential or home-like ambience while still meeting institutional requirements.
C. Ceiling – A solid ceiling is preferred for all areas of a behavioral health facility. However, where accessibility to mechanical, electrical, and communication equipment is needed, The Joint Commission’s November 2017 Edition of Perspectives (modified by FAQ in the January 2019 edition of Perspectives) currently allows unsecured lay-in ceiling to be used under certain circumstances. As of this writing, the authors are not aware of any manufacturer who produces hold-down-clips that are specifically recommended for use to limit patient access above the ceiling. Systems relying on hold-down clips always rely on the last tile being placed is not secure unless some form of locked access panel is provided to allow installation of the clip on the last tile.

Several solutions that can reuse the existing ceiling grid system and may be less expensive than typical gypsum board ceiling installation may be considered:

1. Remove existing ceiling tile and install specialty 2’x2’ metal ceiling panels with tamper-resistant screws in the recessed joints to resist removal. This system will allow access at any point and is available in sound absorbing models.

2. Remove existing ceiling tile and install special clips that are made to fit over existing grid members that are at least intermediate grade steel system (not aluminum). Then attach 5/8” thick sound absorbing gypsum board ceiling (mud and tape joints – paint) to these clips. Lockable access panels will be required at all necessary locations. It may be necessary to support light fixtures, etc. independently of the existing grid to avoid overloading the carrying capacity of the existing grid.

D. Glazing (Interior and Exterior) – When it is broken, all glazing that is exposed in patient-accessible areas should stay in the frame and not yield sharp shards that patients could use as weapons. Terminology can be confusing in that laminated glass like that used in vehicle windows is often referred to as “safety glass” but, when broken, can yield large sharp pieces. All glazing materials that are exposed in all patient accessible areas should be considered, including the exterior surface of windows accessible from exterior courtyards to be used by patients.

Some of the forms of glazing recommended for use in behavioral health facilities are listed here:

1. Standards – All glazing in patient-accessible areas should be security glazing.

   The 2018 edition of the FGI Guidelines for Design and Construction of Hospitals contains the following reference to window testing:

   2.5-7.2.2.5 Windows...

   (2) To prevent opportunities for suicide, self-harm, and escape, the entire window system and the anchorage for windows and window assemblies, including frames and glazing, shall be:
(a) Designed to resist impact loads of 2,000 foot-pounds applied from the inside

(b) Tested in accordance with AAMA 501.8-13: Standard Test Method for Determination of Resistance to Human Impact of Window Systems Intended for Use in Psychiatric Applications. Where operable windows are used, hinges and locking devices shall also be tested.

2. Impact-Resistant Glass Products – Several glass manufacturers offer products that may be appropriate for use in behavioral health facilities. The products chosen will vary depending on the size of the opening, type of frame, patient population being served, and location of the glazing in the unit (as determined by the patient safety risk assessment) including the distance the opening is above grade. We suggest contacting manufacturers directly to determine which products may be appropriate for a specific project.

a. Heat-Strengthened Glass – Although more difficult to break than regular float glass, heat-strengthened glass has about half the strength of tempered glass. Heat-strengthened glass may be a good choice if it is laminated and high-impact resistance is not required for the location.

b. Tempered Glass – This may be acceptable for use in some patient-accessible areas such as small windows in doors, portions of glass walls separating activity rooms from corridors, and patient toilet room mirrors. Tempered glass is more impact-resistant than float glass or laminated glass but will break into many small pieces and fall out of the frame, which may allow a patient to elope. As well, each piece may have sharp edges. Patients have been known to break tempered glass mirrors and rub the inside of their wrists on the broken surface to cut themselves or swallow the small pieces of glass. This hazard may be reduced by covering the tempered glass with a security film as described below.

c. Tempered/Laminated Glass – Two layers of tempered glass are bonded to a PVB interlayer, which helps the glass stay in the frame when broken.

d. Glass-Clad Polycarbonate Glazing – Two layers of heat-strengthened glass are bonded to a polycarbonate core. This combination keeps the broken material in the frame and reduces patient access to shards of glass that could be used as weapons and is usually available in 7/16” and 9/16” thicknesses.

e. Window Film – If replacing existing glass is cost-prohibitive, applying a window film security laminate to existing glass may be an alternative. Although these films are susceptible to scratching and defacement by patients, they may be removed and replaced at less cost than replacing glass or polycarbonate panels. The manufacturer’s installations instructions should always be carefully followed including any impact-protection adhesives and a perimeter attachment system needed to hold the glass in the frame if broken.
In our opinion, claims that these window films will prevent glass from breaking should not be relied upon.

f. **Wire Glass** — *Standard wire glass* will break and yield sharp shards of glass and is generally not permitted by many current codes and regulations. There is now wire glass\(^{205c}\) that is rated for both security and fire by its manufacturers that may be considered. Verification with local AHJ is always recommended before purchasing new products.

g. **Fire-Rated Glass**\(^{205}\) — Clear fire-rated glass products are now available in a variety of types and ratings and some are rated for impact resistance.

h. **Polycarbonate**\(^{201}\) (Lexan) — Polycarbonate panels are highly impact-resistant and available in a variety of thicknesses from several manufacturers. These products will deflect upon significant impact near the center of large panels that can result in large pieces coming out of their frames. Care should be taken to assure that the depth of the stop securing the panel will be able to hold it when subjected to this and other impacts. This material is also highly susceptible to scratching and is a frequent target of patients who write profanity and draw pictures. Mar-resistant coatings are available, but they do not eliminate this concern. Recent projects have indicated this may be the more expensive than glass-clad polycarbonate products.

E. Doors: Hardware on doors that connect to a higher Level of Risk shall have hardware suitable for the higher level on the side that is exposed on the higher risk.

1. **Elopement Buffers** (generally called sally ports) — The 2018 Edition of the FGI Guidelines calls for the “primary access point to the locked unit to be through a sally port” (Section 2.5-2.2.1.2). The Appendix for this section states that a sally port has two doors (or two sets of cross-corridor doors) that are electrically interlocked\(^{144}\) and “the sally port should be long enough and the door wide enough to accommodate passage of a bed or laundry cart.”

2. **Access Control** —

   a. Provide intercom (or telephone) for communication to nurse stations from outside the unit if needed.

   b. Electronically controlled access systems are preferred. These may be operated by a switch at the nurse station if the door is clearly visible from the location of the release button. (Care should be taken to assure that patients are not in the area when the door is released.) Card readers or keypads adjacent to the door are also commonly used. These are readily available from hardware suppliers and are often extensions of systems already in place at the facility.
c. Metal Detectors – Some organizations have expressed the desire to use metal detectors to assist with screening patients and/or visitors to their behavioral health facilities. Some choose to use hand-held detectors and others use standard walk-through detectors. Organizations considering metal detection solutions may want to investigate ferrous metal detection systems that sense the presence of ferrous metal in objects such as razor blades, syringes, lighters, cell phones, knives and guns. These systems will not detect drugs or other nonferrous metal contraband items.

3. Cross-Corridor Doors – These doors are provided for several reasons, and each has its own unique function and requirements. Some are part of code required fire rated partitions and normally held open and others are to restrict patient or public access and normally locked and to automatically unlock when the fire alarm is activated (fail safe operation) or remain locked when the fire alarm is activated (fail secure operation). When there is concern that electromagnetic locks may not be sufficient to hold these doors when impacted by patients, concealed deadbolts with the electric release in the lever handle or electric strikes (for single doors) may be provided.

4. Other Doors – Doors in behavioral health facilities are subject to heavy use and possibly extensive abuse. They make up a significant percentage of the exposed wall surface in corridors and thus have a strong visual impact on these spaces. Painted steel doors are durable, easily touched up or refinished, but more institutional in appearance. Doors with wood veneer faces and stain and varnish finish are more “residential” in character but are easily damaged and difficult to repair. Plastic laminate covered doors are also easy to chip on the edges and may soon become unsightly. One way to address the damage these doors receive is to add stainless steel kickplates, door edges, and other add-on devices, although these can add to an institutional look. (NOTE: The installation of kickplates may invalidate the fire rating of doors in some jurisdictions.) Kickplates and other protective devices are also available in durable synthetic materials that come in a variety of colors, which soften the stainless-steel look but can still result in a patchwork appearance.
A possible solution to these issues is doors faced with a durable synthetic that has a wood grain appearance. Some of these doors have removable end caps,\textsuperscript{25a} which can be replaced if they become damaged at much less expense than replacing the entire door. Doors with synthetic faces without the replaceable end caps\textsuperscript{25b} are available for a lower initial cost.

Although the first cost for these synthetic-faced doors is higher than for doors of other materials, they do not require the added expense of finishing the doors and purchasing and installing kickplates, etc. Thus, the life cycle cost can potentially be less than for other doors, and the appearance over time may be a significant improvement.

F. Hardware

1. Hinges – Geared-type continuous hinges are preferred for all doors patients will pass through and normally locked doors that have hinges exposed in patient accessible areas because they minimize possible attachment points. These hinges are available from various manufacturers with a closed-sloped top and continuous gears that resist ligature attachment.\textsuperscript{111} Field cutting the top of hinges to create this slope is strongly discouraged because that often exposes voids that may be used as ligature attachment points.

2. Closers – Closers are generally not required for patient room doors in most jurisdictions but may be required for other doors. Where needed, concealed closers\textsuperscript{100a} that have the closer and the track both completely contained in the head of the door and frame offer the least amount of ligature attachment opportunity (the arm is only exposed when the door is open). However, these require special preparation of the door and frame and are difficult and expensive to provide in existing conditions. Where concealed closers are not practical, it is suggested that track closers\textsuperscript{100b} be provided and located on the side of the door that either patients are not allowed (Level I spaces) or where the closers are most observable by staff.

3. Locksets – Use of some type of ligature-resistant lockset is recommended for all doors in patient-accessible areas. A lockset can be used for ligature attachment in three ways: pulling down, pulling up and over the top of the door, and tying something around the latch edge of the door using both the inside and outside handles (transverse). The latchbolt itself has even been used successfully as an attachment
point and some companies offer a tapered bolt to help with this. The downside to this is that it makes it easier to open a locked door by using a small piece of cardboard or other item. Also, the opening behind the strike plate can be a ligature attachment point; for this reason, a box should always be provided behind the strike plate. In our opinion, the perfect solution for this dilemma does not exist at this time. Several of the better options are discussed below.

a. Locksets with a Lever Handle - These effectively deal with up and down pressure but are susceptible to transverse attachment. The lever should move freely in both directions when locked to reduce ligature attachment risks. This type of handle is more typical (less institutional) in appearance and operation than other choices. Both of these qualities are very desirable in items that patients will touch and use on a regular basis. However, lever handles may present more risk than some of the other choices.

b. Crescent Handle Lockset – This type of lockset has a lever handle and thumb turn that are ligature-resistant and may meet ADA requirements. It is available with a handle that can be mounted in a horizontal position and allows the user’s hand to easily slip off the free end.

c. Push/Pull Hardware – This type of door handle is available with a flush push pad on one side and a ligature-resistant pull handle on the other.

d. Modified Lever Handles – These provide minimal ligature attachment risk but have an unusual appearance and operating motion. They are available in various designs.

4. Unit Entrance Door Hardware –
   Electronically controlled access systems with electric strikes or electromagnetic locks are preferred. See Level II-E-2 (Doors – Access Control).

The two doors or two sets of cross-corridor doors in an elopement buffer (sally port) are electronically interlocked so that only one door can be open at a time. Care should be taken to assure that adequate space is provided for both doors to be closed at the same time with a gurney in
between. Packaged systems for this hardware\textsuperscript{144} can be used to satisfy this requirement.

5. **Exit Door Hardware** – Exit doors (including stairway doors) in behavioral health facilities are often locked at all times. They may be locked with electromagnetic locks\textsuperscript{110} connected to the fire alarm system and may stay locked when the fire alarm is activated (fail secure) or release when the alarm is activated (fail safe) as deemed appropriate for the patient population. The acceptability of this type of hardware and its operating mode should be verified with the local authorities having jurisdiction. Electromagnetic exit door locks are available in varying holding strengths, and the mounting position recommended by the manufacturer must be carefully followed to provide the rated holding force. For extraordinary circumstances, more than one electromagnetic lock can be provided per door or electrically operated deadbolts or a vertical frame member at the strike jamb may be required.

6. **Hardware for All Unit Doors**

   a. Doors for which applicable codes and regulations require a closer but that need to be open to allow staff observation of patients are preferred to be equipped with a hold-open equipped closer that has a built-in release\textsuperscript{101} that allows the door to close automatically when the fire alarm is activated. The more standard magnetic hold open devices that are separate items provide ligature attachment risks and are less desirable.

   b. For doors that swing into rooms that patients will enter, one of the barricade-resistant methods discussed in Level IV-a should be used.

7. **Door Smoke Seals** – These may be required in some situations and are often applied with adhesive strips that can allow patients to remove them to use as ligatures. Smoke seals that break into 8”-long pieces\textsuperscript{10} are preferred for use on all doors that patients will pass through. These are available from several manufacturers.

8. **Hardware for Toilet and Shower Room Doors** – Patient-accessible toilet rooms and shower rooms located near activity rooms and other locations on the unit should have all the features of the patient toilet rooms discussed in Level IV-b. In addition, they will need to have a “storeroom function”
locking device to limit both unauthorized use and entrance by others when in use.

G. Light Fixtures – If located at a height or location that is not easily accessible to patients, these may be normal fixtures and lamps in Level II spaces as long as staff observation is good from an always attended nurse station and there is no furniture or other items in the area that patients can use to climb on and reach the ceiling. However, tamper-resistant fixtures as discussed under Level III-F below are always preferred for patient accessible areas of inpatient units.

Glass components that could be accessed by patients should not be used in any fixture. Use of table lamps or desk lamps is strongly discouraged. Neither incandescent lightbulbs nor fluorescent tubes should ever be accessible to patients.

Motion detector control of corridor light fixtures (other than minimal night-lighting) has been suggested. This would allow staff to know immediately when a patient leaves his or her room.

H. Fire Sprinklers – Institutional heads that provide very little opportunity for attachment should be provided.

I. HVAC Grilles and Equipment

1. Standard grilles with small perforations that are secured in place with tamper-resistant fasteners are generally acceptable in Level II spaces (easily observed corridors, counseling rooms, interview rooms, etc.) as long as they are mounted high enough that patients cannot easily reach them.

2. Where existing fan/coil units (as well as fin-tube heaters or old style radiators) are present in these spaces, they should be protected with vandal-resistant covers.

J. Window Coverings

1. Mini-Blinds – Mini-blinds mounted between layers of safety glass are preferred because the blinds are not accessible to patients. Care should be taken to assure that any exposed devices for controlling the tilt of the blinds do not create a potential ligature attachment point. Some commercially available window assemblies have all these features. Exposed mini-blinds should never be used.
2. **Roller Shades**\(^{440}\) – Roller shades specifically manufactured for use in psychiatric hospitals are another option.

These have enclosed security roller boxes, security fasteners, cordless operation, and locking devices that resist tampering by patients may be acceptable for some patient populations. If access to these blinds by patients is deemed not acceptable, electrically operated standard roller blinds may be installed behind security glazing.

3. **Electrically Obscured Glazing**\(^ {221}\) is becoming more reasonably priced and may be a good option for controlling privacy.

4. **Curtains and Curtain Tracks** – Curtains and associated tracks of any type (including those designated as “breakaway” and represented by their manufacturers as “safe for psychiatric hospitals”) are not recommended for use in any patient-accessible areas, especially patient rooms and patient showers.

K. **Operable Windows** – Windows in all patient-accessible areas should comply with all applicable codes and regulations for operable sash. Where operable windows are provided, they should be equipped with sash control devices\(^ {170}\) that limit how far the window can be opened and that, where required, can be released to full opening using a key for evacuation purposes. Window systems are also available that allow fresh air\(^ {434}\) through a rotating vent at the bottom or by sliding the window open a few inches.

L. **Miscellaneous**

1. **Trash Can Liners** – Plastic trash can liners should not be allowed in any space accessible to patients. Breathable paper liners\(^ {1}\) should be provided.

2. **Telephones** – Telephones located in corridors or common spaces for patient use should have a stainless-steel case\(^ {655}\) be securely mounted to the wall, and have a non-removable shielded cord of minimal length (as approved by the Risk Management and Safety Committees of the hospital) with cable tether inside the shield. They may be equipped with or without touch pads for placing outbound calls.

3. **Cabinet Pulls** – These should be recessed, with no protruding openings, or of a closed ligature-resistant type.\(^ {460}\)
4. **Cabinet Locks** – These are very important in all patient-accessible areas. Cabinets used to store items that patients could use to harm themselves or others should be kept locked at all times when patients are present. This can lead to staff constantly looking for the right key on a large keychain. One solution is to provide locks that can be unlocked with a key that staff already carry, such as the key used to activate the fire alarm. Another solution is to use existing key access cards or a pushbutton keypad. These are becoming more affordable and should be particularly helpful in examination/treatment rooms and any locked cabinets in patient rooms.

5. **Room Signs** – Room signs are available in a flexible material that is applied with adhesive and will not provide a weapon to patients if removed. These can include braille lettering and meet ADA requirements.

6. **Fire Response Equipment** – All fire alarm pull stations and all fire extinguisher cabinets should be locked (with approval of all applicable code authorities). All staff on duty must carry keys for these at all times. These keys should be provided with a red plastic ring or other means of providing quick identification. In addition, fire extinguisher cabinets should have continuous hinges, recessed pulls (if any), and polycarbonate glazing if view windows are provided.

7. **Lighted Exit Signs** or **Photoluminescent Signs** – These should be vandal-resistant and installed tight to the ceiling with a full-length mounting bracket to avoid use as a hanging device. Mounting these signs on a wall so they are perpendicular to the wall is not recommended because it leaves the top exposed as a possible attachment point.

8. **Observation Mirrors** – Convex mirrors installed in corridors, seclusion rooms, and other patient-accessible locations to assist with observation of patients should be made of a polycarbonate that is a minimum of 1/4" thick, be filled with high-density foam, and have a heavy metal frame that fits tightly to the wall and ceiling. Convex mirrors made of polished steel are also available. The perimeter of the mirror should be sealed with pick-resistant caulking.
M. Furniture

1. Furniture used in behavioral health facilities should be easily cleaned, easily reupholstered, very sturdy, and as heavy as possible to minimize the likelihood of patients throwing chairs, tables, etc. As much furniture as practical should be built-in or securely anchored in place to prevent stacking or barricading of doors. Remaining loose items (such as chairs) can vary from high-quality wood, steel or plastic. Armed upholstered chairs that resemble typical residential furniture are generally preferred, but polyethylene rotationally molded and sand-ballasted seating is now available with a less institutional look. The health care organization should select furniture appropriate for the patient population served and the location on the unit for which it is intended. Care should be taken to realize that it is not uncommon for unauthorized movement of furniture from a low-level risk area to a higher risk area of a unit to occur. This may result in unintended risks being created.

2. Lockable storage cabinets and drawers should be provided, along with the means to lock phones and computers away from patients. Some organizations have a switch installed in a staff area to deactivate patient use phones at times when patients are not allowed to make calls.

3. All upholstery and foam used in furniture should have flame-spread ratings that comply with the requirements of Section 10.3 of NFPA 101: Life Safety Code®.

N. Pictures and Artwork – All pictures and artwork in patient-accessible areas must be given special consideration:

1. Murals – These can brighten and add interest to corridors and day rooms and have been used very effectively in some facilities. It is usually a good idea to cover them with at least two coats of a clear sealer for protection, but patients typically enjoy these and defacing them is not usually a problem. Murals are also available on wall vinyl and wall protection materials.

2. Wall Protection – Large sheets of durable wall protection material are available with a wide variety of printed artwork. However, the standard vinyl trim pieces that come with this material should not be used for behavioral health applications. Rather, the edges of the material should be tightly fitted together and sealed with pick-resistant caulk.
3. **Frames** – Specially designed frames\(^{302}\) that slope away from the wall and have polycarbonate\(^{201}\) glazing are recommended. The frames should be screwed to the walls with a minimum of one tamper-resistant screw\(^{470}\) per side. Care should be taken to reduce opportunities for attaching ligatures to the frame or the joint between the top of the frame and the wall, especially when the surface of the wall is not perfectly flat, causing gaps between the wall and frame. The joint at the top should be sealed with a pick-resistant sealant.\(^{20}\) Some of these frames allow for easy replacement of the images and provide the opportunity for patients to customize the displays with personal photos, etc.

4. **Printed Flexible Vinyl** – Another option is to print artwork on flexible vinyl\(^{301}\) that can be attached to walls with low-tack adhesive or regular wall vinyl adhesive for more permanent installations. This method reduces the risk of patients obtaining harmful materials. The low-tack adhesive used on smaller images makes it easier to change the art displayed on a seasonal or other basis and allows hospitals to offer patients a choice of artwork to display in their rooms, giving them some control over their environment.

O. **Ligature-Resistant Drinking Water Stations** – Drinking fountains are often required or desired in common spaces on units. Typical drinking fountains can prove problematic for ligature and infection control reasons, but requiring patients to ask staff every time they want a drink of water can rank high on patient dissatisfaction surveys.

To address this issue, consider use of water cup-filling stations in patient-accessible areas. Several options are available for cup-filling stations\(^{589}\) that have either local or remote refrigeration units, in both wall-mounted and countertop styles.

P. **Handwashing stations**\(^{545}\) for patient accessible areas are now available that provide less risk than standard fixtures. These are recessed and have integral soap dispensers and air dryers to eliminate the need for separate dispensers which may also provide risks.
Level III. Areas that are not behind self-closing and self-locking doors where patients may spend time with minimal supervision such as lounges, day rooms and corridors where staff are not regularly present. Open nurse stations should be considered under this Level:

A. **Floors** – Use sheet vinyl\(^{245}\) where wet or potentially messy activities will be conducted. Carpet should be broadloom or sheet carpeting and have antimicrobial, solution-dyed yarn and non-moisture absorbent backing.\(^{255}\)

B. **Walls** – Same as for corridors in Level II.

C. **Ceiling** – Non-accessible solid gypsum board ceilings or secure sound absorbing ceilings that allow accessibility are preferred. If sound attenuation for gypsum board ceilings is desired, either use sound absorbing gypsum board\(^{232}\) or apply 1’x1’ acoustic tile to the gypsum board. Ceiling heights lower than nine-foot-high are discouraged because it is easy for patients to reach them and tamper with the ceilings and ceiling-mounted devices. Ceiling heights of nine-feet and above are not immune from tampering and must be evaluated in the Safety Risk Assessment for each unit. The authors do not recommend that standard (unsecured) accessible ceilings be provided in Level III areas. One of the solutions in Level II C above are preferred.

D. **Glass** – Same as for corridors in Level II.

E. **Doors** – Same as for counseling and interview rooms in Level II.

F. **Light Fixtures** – For areas where patients are reasonably anticipated to be alone (i.e. Level III or IV), where fixtures can be reached by patients and in areas that are not readily observable by staff, light fixtures should be a tamper-resistant type\(^{620}\) and have minimum \(\frac{3}{4}\)“-thick polycarbonate prismatic lenses\(^{634}\) securely fixed in the frame with covers that are firmly secured with tamper-resistant screws.\(^{470}\) Many such fixtures are now available with LED light sources.

G. **Fire Sprinklers, Institutional Type** – Same as for corridors in Level II.

H. **HVAC Grilles and Equipment** –
   1. Grilles with very small perforations\(^{602}\) or grilles with “S” shaped vanes\(^{500}\) that comply with National Institute of Corrections standards should be used in Level III spaces.
2. If individual fan/coil-type units exist and must remain, they should be protected with vandal-resistant covers\textsuperscript{606} the same as for corridors in Level II-I.

I. **Window-Covering Hardware** – Same as for counseling and interview rooms in Level II.

J. **Furniture** – All lounge furniture requirements listed for counseling and interview rooms in Level II also apply to this level. Where movable seating is required (e.g., dining and activity rooms), very lightweight polypropylene chairs\textsuperscript{481} that resist breaking into sharp pieces are preferred. An alternative is a chair that can be partially filled with sand to make it difficult to throw or use as a weapon.\textsuperscript{480} Comfort Rooms and other lounge areas may have specialty bean bag\textsuperscript{481d} type seating that is manufactured without zippers and with very durable materials and seams.

K. **Kitchen Appliances**

1. All cooking appliances (ranges, microwaves, coffee makers, etc.) should have key-operated lockout switches\textsuperscript{611} to disable the appliance. If these and other appliances, such as refrigerators, have open handles that could be used as ligature attachment points, and they are in areas where patients have unsupervised access to them, provisions should be made to close them off with overhead coiling doors or other means.

2. Patient access to coffee should be carefully considered in each facility’s risk management program. If access to this (and other potentially scalding liquids) is allowed, an insulated plastic dispenser should be located so it is readily observable by staff. Glass coffee pots should never be available to patients.

3. All garbage disposal units should have a key-operated lockout switch\textsuperscript{611} to disable the device.

4. All receptacles located near sources of water, including sinks, as well as all patient-accessible receptacles must be GFCI-protected as required by applicable codes.
L. Miscellaneous

All miscellaneous requirements listed for counseling and interview rooms in Level II apply to this level also.

1. **Electrical Device Cover Plates** – All electrical device cover plates (for switches, receptacles, etc.) must be attached with tamper-resistant screws. Cover plates made of polycarbonate materials are preferred; each cover plate must have screws in each corner to make it rigid enough to resist bending and protect patients from access to electrical wiring and contacts. Standard stainless steel cover plates that fit tightly to the wall are rigid may be acceptable for many patient populations. These may be secured with a single tamper-resistant screw in the center as long as it is securely tightened.

2. **Television** – TV sets should not be mounted on walls using exposed brackets because of the ligature risk this presents. Rather, all TV sets should be installed in built-in TV or media centers or manufactured tamper-resistant covers with sloped tops. They should also have an isolation switch that staff can control.

For maximum safety, the electrical outlet and cable TV outlet should be located inside the cover to keep the wires and cables away from patients. One facility utilized unused platform beds mounted vertically on the wall to house television sets and conceal all wires and cables.

**Level IV. Areas where patients spend a great deal of time alone with minimal or no supervision:**

**Level IV-a. Patient Rooms**

A. **Floors** – Same as lounges and activity rooms in Level III. If some patients are prone to urinate on the floor, provide some rooms with seamless epoxy or sheet vinyl flooring with an integral cove base. Metal or plastic strips should not be applied at the top edge of the base. Use of a system that eliminates the need for trim strips is recommended.

B. **Walls** – Impact- and/or abrasion-resistant gypsum board installed on minimum 20-gauge metal studs spaced no more than 16 inches on center; paint finish preferred. Sound-attenuating gypsum board may also be used on walls if
approved by the manufacturer for use in behavioral health applications.

C. **Ceiling** – Non-accessible solid gypsum board (sound-attenuating if desired), painted. Provide key-lockable access panels\(^{30}\) at all patient-accessible locations. If these access panels do not fit tightly or are a larger size, it may be necessary to provide tamper-resistant screws in the corners or along the sides of the panels. Pick-resistant caulk may be needed if the flanges of these panels do not fit tightly to the ceiling or wall surface.

D. **Doors:** - Patient room-to-corridor doors may present an opportunity for patients to barricade themselves in their rooms to delay staff members’ access. One solution is to hinge the door so it swings into the corridor. However, this may create its own problem with the *Life Safety Code* and other building codes. This arrangement may also result in creation of an alcove that is difficult to observe and that patients may use as a hiding place from which to attack staff or other patients.

To avoid these problems, patient room-to-corridor doors may be mounted to swing into patient rooms using several other barricade solutions:

1. Double-acting continuous hinges\(^{113}\) can be used on patient room-to-corridor doors to counteract barricading without the hazard presented by pivot hinges. These continuous hinges can be paired with full-height emergency stops\(^{115}\) that lock in place and can be easily unlocked to allow the door to swing into the corridor.

2. The door-within-a-door\(^{44}\) (sometimes referred to as a “wicket” door) has a portion of the center of the door hinged to swing into the corridor. This hinged panel is mounted on a continuous (or concealed) hinge and secured with a deadbolt lock that has no visible hardware on the room side of the door. Care should be taken with the detail of the edge of the smaller panel so that a crack is not provided that can be seen through.
3. If space is available, a separate narrow (18”–24” wide) door that swings into the corridor may be used for emergency access to the room. This smaller leaf can either be mounted in the same frame as the main door in a “double-egress” configuration or there can be a mullion between the two leaves. The mullion provides a more secure, quieter and fewer adjustment issues with the hardware while a wider opening is provided with both leaves open when the mullion is not provided.

4. The top of all tight-fitting doors provides a pinch point that allows a patient to tie a knot (in a sheet, the leg of a pair of jeans, or other object), place it over the top of the door, and close the door to create a hanging device. One way to reduce this risk is with a pressure-sensitive or photoelectric device placed near the top of the door that can sound an alarm when activated.

5. Some facilities have begun to address the desire of some patients to lock themselves in their rooms to avoid unwanted entrance by other patients. The challenges with this are to provide individual security for the patient without restricting staff access to the room. Options include locksets with specialized locking functions and ligature-resistant turnpieces that cannot be held from inside the door to resist a key being turned to unlock the door. A cylinder protector to cover the lock cylinder on the corridor side of the door resists attempts to insert objects in the keyway. Card access technology is also available to control these locks.
E. Glass

1. **Exterior Windows** – See Level II-D-1 (Safety Glazing) and K. (Operable Windows).

   Advances in different types of safety glass make it worthwhile to consult an expert for advice for a specific project. The height above the ground, patient population, and many other factors should be taken into account in choosing these materials. Comply with the FGI *Guidelines* and all applicable codes and regulations for glazing, frame installation and operable sash.

2. **Security Screens** – If replacing windows presents a prohibitive cost in remodeling work, a security screen with a very sturdy steel frame designed to resist deflection and equipped with multiple key locks and a heavy-gauge stainless steel screen fabric may be used. These are functional and secure but create an “institutional” appearance and can be defaced by writing obscene words with toothpaste (or other material). Patients have also been known to use the rough surface of the screen fabric to abrade their skin.

3. **Mirrors** – There are several options now available.
   a. Glass-laminated polycarbonate mirrors in ligature resistant wood frames offer an option with a residential appearance and are scratch resistant.
   b. Polycarbonate mirrors with built-in lighting are attractive and non-institutional but are susceptible to scratching.
   c. Typical radiused stainless steel-framed security mirrors are available with polycarbonate, tempered glass, stainless steel, or chrome-plated steel reflective surfaces. Each has different durability and distortion characteristics. Some framed mirrors have a flat surface on top and/or do not fit tightly to the wall and provide opportunities for ligature attachment. Where this occurs, a tapered strip may be installed to reduce this ligature risk.
4. **View Windows to Corridors** – Use of polycarbonate,\textsuperscript{201} security glazing, or tempered glass is recommended for view windows to corridors in doors and sidelights. If a fire rating is required by code, fire-rated glass should be provided. Wire glass is no longer allowed by most codes and jurisdictions.

Use of view windows in patient room-to-corridor doors or sidelights brings up some conflicting issues. One point of view is that they are necessary to allow staff observation, while others believe the windows infringe on patient privacy because anyone, including other patients, can see into the room. Possible solutions are to provide an operable blind\textsuperscript{220} that only staff can control from the corridor side or glazing that can be electrically obscured.\textsuperscript{221}

**F. Doors** – See comments under Level II-E.

It is highly desirable to keep vacant patient rooms locked at all times to prevent other patients from entering these rooms without staff knowledge. However, because many jurisdictions do not permit provision of means to lock a patient in a room, “classroom”-type locks are recommended. These can always be opened from the inside, and the corridor side may be either locked or unlocked with a key.

**G. Light Fixtures** – Same as in Level II except that all light fixtures should be security-type fixtures.\textsuperscript{620}

Advancements in LED lighting applications are rapidly creating new options. The use of traditional 2’x4’ fluorescent light fixtures creates a very commercial or institutional appearance in patient rooms, and the placement of one of these directly over the bed is a carryover from general hospital design that is seldom needed in behavioral health facilities. Preference is for using either round or oval surface-mounted, vandal-resistant fixtures for general illumination and recessed security downlights with polycarbonate lenses over the beds for reading lights. Many of these fixtures are now available with LED light sources.

Small individual reading lights\textsuperscript{624} can be provided to give reading light or allow patients to turn on a small light to assist when getting up in the middle of the night.
Covers are available for existing (or new) downlights that are secure and make the appearance more residential in nature.

No glass components should be exposed to patients in any fixture and use of table lamps and desk lamps is strongly discouraged.

H. Fire Sprinklers, Institutional Type – Same as for corridors in Level II.

I. HVAC Grilles and Equipment

1. Fully recessed vandal-resistant grilles with S-shaped air passageways are recommended for all ceiling and wall-mounted grilles.

2. In new construction or major remodeling projects, locate individual room HVAC equipment (such as fan/coil units) in an adjacent corridor or another location (e.g., an interstitial space) where they can be serviced without entering the patient room.

3. If individual fan/coil-type units exist and must remain, they should be protected with vandal-resistant covers the same as for corridors in all other Levels.

J. Window-Covering Hardware – Same as for counseling and interview rooms in Level II

K. Furniture

1. Furniture – Sturdy wood, thermoplastic, or composite furniture should be bolted to the floor or walls whenever possible. Care must be taken to assure the furniture will withstand abuse, will not provide opportunities for hiding contraband, does not have joints that will allow penetration of liquids such as urine, and will resist being disassembled to provide patients with weapons.

Open-front units with fixed shelves and no doors or drawers are recommended. Doors should not be provided because they can be used by patients to hang themselves. Drawers should not be provided because they can be removed by patients and broken to use as weapons. All upholstery and foam used in furniture and mattresses should have flame-spread ratings that comply
with the requirements of NFPA 101: Life Safety Code, Section 10.3.

Desk chairs are preferred to be lightweight\textsuperscript{481} or ballasted\textsuperscript{486} as discussed in Level III-J (Furniture).

2. Beds

a. **Non-Adjustable Platform Beds**\textsuperscript{493} – Beds without wire springs or storage drawers are preferred. These beds should be securely anchored in place to prevent patients from using them to barricade the door. If a portable lifting device will be used, beds are available with an opening underneath to accommodate the legs of the lift.\textsuperscript{494} Portable lifts can also be accommodated by placing an existing platform bed on a specially designed riser; this arrangement also reduces the amount of bending over staff need to do to work with the patient.\textsuperscript{494b}

b. **Mattresses for Platform Beds**\textsuperscript{492} – These should be specifically designed for use in behavioral health facilities and be resistant to abuse and contamination.

c. **Electric Hospital Beds** – If electrically operable beds are needed for patients with co-existing medical issues or to reduce risk of staff injuries, beds that are specifically marketed for use on behavioral health units\textsuperscript{490} should be used rather than standard electrically adjustable hospital beds. These specialty beds will sense obstructions and reverse direction and have lockout features for the controls, reduced-length cords, and other tamper-resistant features. However, they do have significant ligature attachment point risks with the guard rails, headboard, footboard and allow access to many hazards beneath the bed.

If existing electrically operable beds must be used for financial reasons, use only beds that require a constant pressure on a switch located on the bed rail (not a remote-control device or paddle that can be placed on the floor). Also, provide a key lockout switch\textsuperscript{611} on the beds (or a removable pigtail) so only staff can operate the beds. All electrical cords should be secured and shortened. These beds also have significant ligature attachment risks as mentioned above.
As for other wheeled beds, the wheels of electric hospital-type beds should be removed or rendered inoperable. It is further suggested that corridor doors to rooms with electrically operable beds be locked at all time the patient is not in the room to reduce the risk of other patients entering the room and harming themselves.

3. **Wardrobe** – Wardrobe units should not have doors and should have fixed (non-adjustable) shelves. They should be securely anchored in place and have sloped tops. Wardrobes with clothes poles requiring hangers are discouraged because, although the bar can be made safe, the hangers present serious hazards. It should be noted that starting with the 2010 edition, the FGI Guidelines no longer calls for patient rooms to have accommodations for “hanging full-length clothing.” The average length of stay in many facilities is now in the 7-to-10-day range, and patients seldom come with clothing that needs to be hung up.

L. **Miscellaneous**

All requirements for lounges and activity rooms in Level III-L (Miscellaneous) apply to this level also.

1. **Nurse Call Switches** – Nurse call systems are generally not required for behavioral health units. If they are provided, pushbutton-type activation switches are preferred. If cords are provided, it is recommended they be no longer than 4” and as lightweight as possible. In locations where patients may fall and need to reach the nurse call activation switch, a second switch should be installed within 12” of the floor, directly below the switch mounted at typical height.

2. **Electrical Receptacles** – In new construction or major remodeling, provide a dedicated circuit for all electrical outlets in each patient room and bath. This will allow power to the outlets in a specific room to be turned off if necessary for a patient’s safety. Where this is not practical, the outlet may be temporarily covered.

   It is strongly recommended that all electrical outlets in patient rooms and patient toilet rooms be a hospital-grade, tamper-resistant type. Use of GFCI receptacles is also preferred to reduce the risk of patients being able to harm themselves by tampering with the receptacles.
All electrical switch and outlet cover plates should be as discussed in Level III.

4. **Coat Hangers** – Use of hangers is not recommended.

5. **Cubicle Curtains and Tracks** – These are not recommended for use in behavioral health facilities because of the risk they present. If non-ambulatory patients with co-existing medical conditions are being treated on these units, it is recommended they be assigned to single-patient rooms.

6. **Telephone** – If desired, cordless phones may be provided to allow patients to check out a phone for private conversations when appropriate. Phones should not be left in patient rooms permanently because they can be used as weapons.

7. **Television Sets** – Typically, televisions should not be provided in patient rooms to encourage patients to use activity areas with other patients, which allows easier supervision. Some facilities that treat behavioral health patients with medical conditions that prevent them from being ambulatory provide televisions sets in tamper-resistant enclosures in patient rooms; these TVs have override controls for staff use.

8. **Medical Gas Outlets** – These are not normally required for behavioral health units. If there is medical necessity or the outlets are a preexisting condition in remodeling projects, they should be covered with lockable panels or panels attached with tamper-resistant screws. These should be removed only to address the medical needs of the current patient and replaced when that patient is discharged or moved. Special care must be taken in semi-private rooms to assure that access to the medical gases does not present a safety risk to the other patient. Some manufacturers offer lockable covers for outlets.

9. **Trashcans and Liners** – Trashcans and liner requirements listed for counseling and interview rooms in Level II also apply to this level. In choosing trashcans and liners, the potential for patient risk should always be assessed. Plastic liners should be prohibited because of the risk of suffocation. A substitute liner made of paper may be used. Paper liners with rope handles may present ligature risks.
10. **Baseboards** – Use of thin, flexible rubber or vinyl baseboards that are applied only with adhesive and are intended to cover the joint between the wall and floor is strongly discouraged. These become prime targets for patient tampering and can be used to conceal contraband.

Finishing the wall surface to the floor, sealing the joint with pick-resistant sealant, and painting a contrasting color stripe at the floor is preferred. There are several alternatives for locations where finishing the wall material to the floor is not practical:

a. Seamless epoxy flooring that has an integral coved base is an exception to this as long as there is no metal edge strip on the top of the base.

b. A pre-molded base that extends onto the floor plane, finishes flush with the top of the floor tile, and is heat-welded to the flooring may be acceptable in some locations. However, use of this product does not address the issue of hiding contraband unless the top edge is sealed with a pick-resistant sealant.

c. A thick rubber base that resembles wood base profiles is available and provides a more “residential” appearance. All joints to the wall and floor and all vertical joints should be sealed with a pick-resistant sealant.

d. In some cases, a wood base with a minimum ¾" thickness that is adhered to the wall, secured with countersunk tamper-resistant fasteners, and sealed with pick-resistant sealant has been used successfully. If desired, this can be given a semi-transparent stain finish to provide more of a residential look.
Level IV-b. Patient Toilet Rooms

A. Floors – Choose one of the following depending on the acuity of the patient population:

1. **Seamless Epoxy Flooring**[^250] – This flooring should have a slip-resistant finish and integral cove base and can be used in a shower. Do not use a metal or plastic strip at the top of the base as patients can remove it for use as a weapon.

2. **Ceramic and Porcelain Tile**. Larger tiles may be used (to reduce the number of joints) as long as the installation is maintained in good condition.

3. **One-Piece Floor Units** – These units[^564] provide a monolithic floor (European-style) for the entire patient toilet room that drains the shower to a central location. If used in conjunction with location of the shower enclosure and shower head, this unit can eliminate the need for shower curtains.

4. **Solid-Surface Material Floors** – These are available with a trench drain[^564] across the entire front opening of the stall, which not only helps keep water from getting into the room, but also makes the drain more difficult for patients to intentionally clog. Fiberglass shower stalls and floors are generally not durable enough.

5. **Ligature-Resistant Floor Drains** – Are available for both standard round drains[^565a,b] and trench drains[^565c]. Trench drains may require regular cleaning to avoid unwanted odors.

6. **Pre-Built Bathrooms**[^568] – These contain all finishes, fixtures, and accessories and can reduce construction time because they are shipped to the site ready to be connected to the utilities.

B. Walls - Use one of the following depending on the acuity of the patient population and the project budget:

1. Synthetic wall protection panels[^331] (without trim pieces) or solid-surface sheet material

2. Ceramic or porcelain tile in large pieces

3. Gypsum board that is impact-resistant and has mold- and moisture-resistant facing[^230] with epoxy paint; solid-surface sheets in showers
C. **Ceiling** – Gypsum board with mold- and moisture-resistant facing\(^{230}\) with epoxy paint is recommended.

D. **Glass** – Mirrors, same as for patient rooms in Level Iva.

E. **Door** – The first question to address for patient toilet room doors is whether the facility ever has the need/desire to lock patients out of their bathrooms.

1. If there is a need to lock patients out of the bathroom:
   
   a. A full-size, tight fitting, out-swinging door mounted on a **double-acting continuous hinge**\(^{119g}\) with **cap** and over-door alarm\(^{150}\) will need to be installed. Also, a classroom function deadbolt (with a ligature-resistant turn piece that will retract the bolt but not extend a bolt into the head of the door frame\(^{143b}\)), two flush pulls\(^{121}\) mounted back to back (larger pulls\(^{121d}\) available for ADA accessible rooms), and a roller,\(^{147}\) ball\(^{146}\) or magnetic\(^{148}\) latch at the head should be installed along with a rubber fin with top fixing bracket\(^{473e}\) mounted on the strike side of the frame.

   b. A sliding door\(^{40g}\) that is ligature resistant can eliminate issues with swinging door conflicts or floor space issues as long as there is wall surface for it to slide over in the open position. Ligature resistant pulls and locking hardware are available for this configuration. A frame assembly is now available for this system to assist with installation on existing openings.

2. If it is not necessary to lock patients out of their bathrooms, one of the following options may be provided:

   a. Non-lockable doors\(^{40}\) eliminate many of the hanging hazards associated with a typical door. Some attach with magnets and may be easily removed by staff for use as a shield against an attacking patient. A photograph can be printed on its faces of some of these doors. They cannot be locked or latched in any manner. (Use of this product eliminates the need for the items listed under “Hardware” below.

   b. No Door - Some facilities with single-patient rooms are electing to remove doors entirely from patient toilet rooms. The practicality of this depends on the sight line into the toilet room from the corridor door.

F. **Hardware** - See Section II-E.
G. **Light Fixtures** – Same as patient rooms in Level IVa except that fixtures shall be water-resistant with a sealed polycarbonate lens. No glass components should be used in any fixture.

H. **Fire Sprinklers, Institutional Type** – Same as for corridors in Level II

I. **HVAC Grilles and Equipment** – Fully recessed, vandal-resistant grilles with S-shaped air passageways

J. **Miscellaneous**

1. **Medicine Cabinets** – These should not be provided because of the difficulty in observing potentially dangerous items that may be placed in them.

2. **Robe Hooks** – Evaluate the risk of using these hooks. If they are required, they should be the collapsible type.

3. **Towel Bars** – Use collapsible hooks instead of towel bars for towels.

4. **Grab Bars** – Because some patients may be on medications that interfere with their equilibrium, grab bars for toilets and showers are recommended for all patient-accessible toilets. A self-draining bar may be installed on a slight slope. These provide a high degree of safety and are also easy to clean and sanitize. If the wall surface behind the bar is not smooth and flat, provide pick-resistant sealant to the joint between the bar and the wall.

5. **Vertical Grab Bars** – In locations where vertical grab bars are required or desired, typical ligature-resistant bars mounted vertically can usually be grasped only from one side. A ligature-resistant grab bar specifically designed to be mounted vertically can be grasped from either side.

6. **Shower Curtains and Curtain Tracks** – No shower curtains or their tracks of any type (including those designated as “breakaway” and represented by their manufacturers as “safe for psychiatric hospitals”) are recommended for use in any patient-accessible areas, especially patient showers. In new construction, showers could be designed to contain the spray within the compartment without the use of a curtain or door. The use of foam doors or hard plastic doors mounted with a minimal gap between the bottom of the door
and the floor may be used to reduce the amount of water that leaves the shower compartment.

7. **Nurse Call Switches** – Where nurse call switches are required or provided, they should be a ligature-resistant, push-button type. If pull cords are provided, they should be no longer than 4” and as lightweight as possible. In locations where patients may fall and need to reach the nurse call activation switch, a second switch should be installed within 12” of the floor, directly below the switch mounted at typical height.

8. **Lavatories** – Typical commercial solid-surface countertops with integral sinks offer a much less institutional appearance. They also provide a place for patients to set their toothbrushes, etc. Specialty vanity top-type lavatories provide many of the same benefits.

9. **Wall-Hung Solid-Surface Lavatories** – Corner lavatories make ligature attachment difficult and some come with the ADA required 18” space from the wall to the centerline of the drain and matching pipe enclosure.

   If a wall-hung fixture is used that does not fit into a corner, the optional filler panel is recommended to fill the space between the side of the fixture and an adjacent wall when there is one near the fixture. Stainless steel or high-impact polymer pipe covers designed for the lavatories that fit tightly to the bottom of the fixture should also be provided.

10. **Lavatory and Sink Faucets and Valves** – Faucets and valves can provide attachment points for ligatures. A lavatory valve unit is now available that uses a shower valve fitted with a ligature-resistant handle to allow patients to control the temperature (thermostatically limited to prevent scalding) and duration of the water flow. This valve can be used to replace the motion sensor activation of some faucets. Faucets are available in a variety of materials and configurations that range from push-button to motion sensor-activated. Faucets with two push buttons allow patients some choice of water temperature and do not require electricity (either battery or line voltage) to operate. They also will not automatically turn on unexpectedly, which is disturbing to some patients.
11. **Lavatory Waste and Supply Piping** – All piping of this type must be enclosed so it is not accessible to patients.\(^{410}\) Extreme care should be taken to trim the enclosing material so it fits tightly to the underside of the lavatory fixture to prevent the patient from using this space to hide contraband.

12. **Soap Dishes** These should not have handles and should be recessed. Soap dishes that can be installed from the front should be ordered unless there is access to the chase behind the wall for installation.

13. **Soap Dispensers** – Many facilities now use liquid or foam soap in patient areas, but the commonly used hard-plastic soap dispensers are problematic in that they are fairly easy to pull off the wall and break into sharp shards that can be used as weapons. At least one manufacturer now offers steel covers for their standard dispensers. Another solution is a dispenser made of solid-surface material commonly used for countertops that is relatively tamper-resistant. Some commercially available stainless steel dispensers are reasonably ligature-resistant.

14. **Toilets** – Toilets used by behavioral health patients should be a floor-mounted, back (or wall) outlet, back water supply type rather than a wall-mounted fixture, which can be broken off its hangers. Currently, the only china fixtures in this configuration are ADA handicapped-accessible fixtures.\(^{531}\) Where wall-hung toilets or floor mounted fixtures that do not fit tightly to the wall exist and replacing them is not practical, some facilities have had stainless steel or solid surface filler panels custom fabricated to fill the voids.

Movable seats provide attachment points for ligatures, so their use should be considered carefully by each hospital. The solution is to use a fixture with an integral seat as suggested above. Some facilities feel this is too prison-like and choose to accept the risk of the movable seat.

China fixtures themselves (both floor- and wall-mounted) can be broken into large, sharp shards. Toilet fixtures made of solid-surface material and stainless steel are available and are much more resistant to breakage. The stainless steel fixtures can be powder-coated for a less “institutional” appearance.

Toilet fixtures that will support loads in excess of 2,500 pounds are available if needed for patients of size.\(^{536}\)
16. **Flush Valves** – Toilet flush valves that are recessed in the wall[580] and activated by a push button[581] are preferred. Where this is not practical, the flush valve and all related pipes should be enclosed with a stainless steel[585] or plastic[585b] cover with a sloped top that incorporates a push-button activator for the valve. *Sensor activation of flush valves is discouraged because they require electricity (either battery or line voltage) and may flush unexpectedly which can be disturbing to some patients.*

17. **Toilet Paper Holders**
   a. Toilet paper holders[400] that do not require a bar or tube to hold the paper allow for standard use of the roll of toilet paper without requiring everyone using the roll to handle it. They are available in receded and surface mounted styles and some have no moving parts.
   b. Other toilet paper holders use a bar(s) that pivot down[400f,g] when vertical pressure is imposed.

18. **Shower Control Valves**
   *Note:* Provide *thermostatically limited hot water* to prevent accidental or intentional scalding in all patient-accessible toilet rooms.
   a. Single-knob mixing valves that provide minimal opportunity for tying anything around them are preferred.[552] These give patients control of the water temperature and duration of flow. Some of these are claimed to be ADA-compliant by their manufacturers.
   
   b. If it is only necessary to replace the valve handles and the valve itself is working properly, use of a replacement valve handle[552c] that can be adapted to a variety of valves might be considered. *Note:* This may void any remaining warranty on the existing valve.
   
   c. A “no-touch” valve[552e] that appears to be clearly ADA compliant is available. It utilizes infrared controls to give patients control of a range of water temperatures and the duration of flow.
d. One-piece shower assemblies that contain a shower head, push-button valves, and a recessed soap dish\textsuperscript{560} work well for remodeling projects because they reduce the amount of repair needed for wall finishes. These are also available with a second head\textsuperscript{563c} located 48" above the floor and a diverter valve if needed for ADA purposes.

19. **Shower Heads** – These should be a ligature-resistant institutional type\textsuperscript{550} Handicapped-accessible showers are required to have either a handheld shower head or a second, lower head 48" above the floor. The handheld shower head should be on a ligature-resistant, quick-disconnect fitting\textsuperscript{563b} that allows removal of the head and attached hose when not in use. If a hook is provided to hold the handheld showerhead, it should be mounted on the part of the fitting that is removed when the hose is removed. A ligature resistant shower head with integral quick-disconnect fitting and internal diverter valve\textsuperscript{553a} is available which reduces the clutter of individual items. Another option is to provide a lockable cabinet to house the handheld head and valve\textsuperscript{562}.

20. **Shower Drains** – That offer less opportunity for ligature attachment or patients abrading their skin\textsuperscript{565} are preferred over more traditional drain grates.

21. **Diverter Valve** – If a diverter valve is needed to change the water flow from the standard shower head to the ADA-required head, a ligature-resistant diverter valve\textsuperscript{555} may be provided.

22. **Folding Shower Seats** – Shower seats that fold away typically have many tubes and brackets that are hazardous. If a folding shower seat is necessary, one without the tubes and brackets\textsuperscript{380} is suggested.

23. **Shelves** – Shelves to hold miscellaneous items are often requested in shower stalls and near wall-hung lavatories. A stainless-steel suicide-resistant shelf that is either surface-mounted\textsuperscript{371} or recessed into the wall\textsuperscript{370} may be considered for these applications. Front mounted recessed units are preferred unless access to the chase is provided.
24. **Paper Towel Dispensers** – Paper towel dispensers are a concern in patient-accessible toilets because they typically are constructed of light-weight materials that can either be broken or bent to form sharp objects that may be used as weapons. Alternatives are as follows:

a. Place a small stack of paper towels on a surface-mounted or recessed shelf.

b. Provide a heavy-gauge, vandal-resistant dispenser.\(^{340b}\)

c. Install a heavy-duty secure cover\(^{340a}\) over a standard-weight paper towel dispenser.

25. **Electrical Receptacles** – Providing ground-fault circuit interrupter (GFCI)-type electrical circuit breakers for all receptacles near sources of water (e.g., lavatories, toilets, and showers) and in all patient-accessible areas is required by the FGI Guidelines.

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**Level V. Areas where staff interact with newly admitted patients who present potential unknown risks or where patients may be in highly agitated condition:**

**Level V-a. Admissions**

If possible, the admissions function should not take place on an inpatient unit. At admission, unit staff members know very little about a new patient and his or her trigger points. A separate location for admission avoids disrupting either the unit or the new patient due to the agitation of either.

This room should be pleasant and welcoming and should be minimally furnished (with a few loose pieces of furniture).

The room should be large enough to allow for several staff to physically manage the patient if necessary. If possible, the admitting staff member should not be in the room alone with a patient. After the admitting process is complete, the patient can be escorted to the unit. These precautions are particularly important for emergency admissions, which frequently occur at night and on weekends.
A. **Floors** – Same as activity rooms and lounges in Level III

B. **Walls** – Same as patient rooms in Level IV

C. **Ceiling** – Same as patient rooms in Level IV

D. **Glass**
   1. Same as in Level IV
   2. Provide a small (12”x12” or 4”x24”) view window in the door that can be controlled by staff to restrict views into or out of this room.

E. **Doors** – Same as in Level IV

F. **Light fixtures** – Same as in Level IV

G. **Fire Sprinklers, Institutional Type** – Same as in Level IV

H. **HVAC Grilles** – Fully recessed, vandal-resistant grilles with S-shaped air passageways Same as in Level IV

I. **Window Covering Hardware** – Same as in Level IV

J. **Miscellaneous**
   1. All miscellaneous requirements listed for corridors in Level II also apply to this level.
   2. An emergency call button for use by staff should be provided so staff may summon additional staff members if necessary unless personal duress alarm devices are provided to staff that include notification of their current location.
   3. Baseboards same as patient rooms in Level IV

K. **Furniture**
   1. This room should have a built-in desk or table that is firmly attached to the floor or walls and contains a lockable file drawer for forms and a lockable box drawer for pens, pencils, staplers, etc. All loose items should be kept in drawers and out of sight. The furniture arrangement should locate the patient chair so the patient, when seated, will not be between the staff member and the door to the room.
   2. The computer, printer, and telephone should be located so the patient cannot easily reach them. The use of tablet computers and cordless phones in these rooms is preferable.
   3. Seating should be fixed in place or heavyweight as discussed in Level II – M (“Furniture).
Level V-b. Seclusion Rooms

Seclusion rooms are required by the FGI Guidelines to be no less than 7 feet wide and no greater than 11 feet long to avoid providing enough space for a patient to get a running start at the opposite wall. They should be designed to minimize blind spots where patients cannot be observed by staff without entering the room. A minimum ceiling height of 9 feet is preferred. The distance of the seclusion room from the nurse station needs to be considered. The goal is to avoid excessive distance so staff can be readily available as needed. The seclusion room door should open directly into an anteroom to separate these activities from other patients and give the patient access to a toilet without entering the corridor.

A. **Floor** – Continuous sheet vinyl with foam backing and heat-welded seams\(^{272}\) or padded flooring to match wall padding, if used

B. **Walls** – Impact-resistant gypsum board\(^{230}\) over 3/4” plywood on 20-gauge metal studs at 16” on center with high performance finish.\(^{280}\) If wall padding is desired, use of systems with Kevlar-facing or heavy vinyl facing with a 1 1/2” thick foam backing\(^{270}\) may be considered.

One facility has encountered issues with authorities having jurisdiction when using plywood for this purpose and has substituted 25-gauge sheet metal, which stiffens the wall, is easily cut and does not require wider door frames.

C. **Ceiling** – Impact-resistant and/or abrasion-resistant gypsum board\(^{236}\),\(^{231}\) painted at 9’-0” minimum height.

D. **Glass** – All glazing exposed to patients should be the same as in Level II-D.
E. Doors -

1. **Doors** – Heavy-duty, commercial-grade steel doors with a minimum clear width of 3'-8" that are hinged to open out of the room with a polycarbonate view window not to exceed 100 square inches should be used. The window should be installed at a height that allows shorter staff members to see into the room.

2. **Door Hardware** – Exposed door hardware is typically not provided inside these rooms.

   The seclusion room door should have three-point latching with one piece of hardware with a single lever to operate all three bolts.\(^{160}\) Consideration should be given to whether the behavioral health organization wants to have hardware that latches immediately when the door is closed or hardware that requires manual motion to latch the door. A self-latching door may increase the risk of staff becoming locked in the room with a patient, and a keyed cylinder (or concealed card reader) may need to be accessible from inside the room.

F. **Light Fixtures** – Fully recessed, moisture-resistant, vandal-resistant light fixtures\(^{620i}\) installed in the ceiling are recommended.

G. **Fire Sprinklers, Institutional Type** – Same as for Level IV

H. **HVAC grilles**

   1. Fully recessed, vandal-resistant grilles with S-shaped air passageways\(^{600}\)

   2. **Thermostats** – These should be a digital type with control mounted on the wall in the anteroom and sensor in the return air duct serving the room.

I. **Window Covering** – No window covering material or hardware should be accessible to the patient. All window coverings should be behind safety glazing as described in Level II-D. Mini-blinds, roller shades, or other types of window covering may be used behind the safety glazing as long as only staff can operate them
and no ligature attachment points are provided by the system. If electrically operated devices are chosen, controls should be located in the anteroom.

J. Miscellaneous

1. No electrical outlets, switches, thermostats, blank cover plates, or similar devices are permitted inside seclusion rooms.

2. Toilets – Same as those in Level IV-B. Powder-coated stainless-steel fixtures\textsuperscript{534} or solid surface material\textsuperscript{533} are preferred by some facilities.

3. No baseboards should be used in these rooms.

4. Observation Mirror – Install a convex mirror\textsuperscript{420} like that required for glass in corridors in Level II-L-8 (Observation Mirrors). Locate the mirror in the upper corner of the room opposite the seclusion room door. Make sure the mirror can be seen when viewing it from the window in the door. This mirror will give staff a full view of the room prior to opening the door. Care shall be taken to assure the attachment is secure so the patient cannot remove it and have a weapon.

K. Furniture – A seclusion room should have only a behavioral health care mattress\textsuperscript{492} on the floor or a special seclusion room bed.\textsuperscript{493a, 497} These beds are available with loops to which mechanical restraints may be attached, if needed. If a room will be used for patients that are both in restraints and in seclusion (without restraints), there are several options available that allow the restraint attachment loops to be quickly and easily removed.\textsuperscript{498}
SUMMARY

Thoughtful consideration of these design elements and materials by design team members and hospital staff can result in a very aesthetically pleasing environment that will enhance the treatment process and help maximize safety for patients, staff, and visitors. It is strongly recommended that wall-hung lavatories, 2’x4’ fluorescent light fixtures, paddle-handle door hardware, and many other items typically found in general hospitals NOT be used in behavioral health facilities. The reasons these are used in general hospitals typically do not exist in behavioral health care units. Their elimination will significantly reduce the institutional character of behavioral health facilities without decreasing patient or staff safety. As stated in the introduction, this document is intended to represent leading current practices and does not establish minimum standards for behavioral health facilities or represent requirements of codes or regulatory agencies. No product or built environment is entirely without risk.

The authors’ desire is that hospital staff and their design teams will use this information to start conversations about what is the best solution for each individual facility’s patients and staff.
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1a. Trash receptacle liner – paper

**Sani-Liner®**
Wisconsin Converting
1689 Morrow Street
Green Bay, WI 54302
920-593-8297
www.wisconsinconverting.com

1c. Trash receptacle liner – paper

**Psych-Select-Bag™**
Dano Group
150 Harvard Avenue
Stamford, CT 06902
800-348-3266
www.danoinc.com

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**07 00 00 – THERMAL AND MOISTURE PROTECTION**

**07 92 00 - JOINT SEALANTS**

10a. Sound and smoke/fire seals – breakaway

**Cush 'N' Seal with breakaway anti-ligature option**
Door and Hardware Systems, Inc.
17 Silver Street
Rochester, NY 14611
585-235-8543
www.dhsi-seal.com/

10b. Sound and smoke/fire seals – breakaway

**Ligature-resistant Zag option**
Zero International – Allegion
2720 Tobey Dr.
Indianapolis, IN 46219
877-671-7011
www.zerointernational.com

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10c. Sound and smoke/fire seals – breakaway

*Adhesive gaskets - perforated*

Pemko Manufacturing Company  
5535 Distribution Drive  
Memphis, TN 38141  
800-824-3018  
www.pemko.com

20a. Pick-resistant caulk

*Dynaflex™ SC*

Pecora Corporation  
165 Wambold Road  
Harleysville, PA 19438  
800-523-6688  
www.pecora.com

20b. Pick-resistant caulk

*Everseal # SB-190*

Surebond  
3925 Stern Avenue  
St. Charles, IL 60174  
877-843-1818  
www.surebond.com

20c. Pick-resistant caulk

*Mastereal® #CR 190*

BASF Construction Chemicals  
889 Valley Park Drive  
Shakopee, MN 55379  
800-243-6739  
www.master-builders-solutions.basf.us

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08 00 00 - OPENINGS

08 10 00- DOORS AND FRAMES

25a. Synthetic faced door

*Acrovyn® Doors*

Construction Specialties  
3 Werner Way  
Lebanon, NJ 08833  
800-972-7214  
[www.c-sgroup.com](http://www.c-sgroup.com)

25b. Synthetic-faced door

*Thermal-Fused Doors*

ASSA ABLOY Door Group  
c/o Maiman  
3839 East Mustard Way  
Springfield, MO 65803  
417-616-8234  
[www.assaabloywooddoors.com](http://www.assaabloywooddoors.com)

08 31 13 - ACCESS DOORS AND FRAMES

30.a Access panel – lockable

*SP Steel Security Panel with mortise deadbolt prep*

J. L. Industries, Inc.  
4450 West 78th Street Circle  
Bloomington, MN 55435  
800-554-6077  
[www.jlindustries.com](http://www.jlindustries.com)

30.b Access panel – lockable

*Security Access Panel with tamper resistant latches & rounded corners*

Weizel Security  
800-308-3627  
[www.securinghospitals.com](http://www.securinghospitals.com)

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08 34 00 – SPECIAL FUNCTION DOORS

40a. Patient toilet door  
*Sentinel Event Reduction Door*  
Norva Plastics, Inc.  
3911 Killam Ave.  
Norfolk, VA 23508  
800-826-0758  
[www.norvaplastics.com](http://www.norvaplastics.com)

40b. Patient toilet door  
*Soft Suicide Prevention Door*  
Kennon Products, Inc.  
2071 North Main Street  
Sheridan, WY 82801  
307-674-6498  
[www.suicideproofing.com](http://www.suicideproofing.com)

40e. Patient toilet door  
*En-Suite Patient Bathroom Door w/ Shower Door Option: #SHDUS02*  
Kingsway Group USA  
2807 Samoset Road  
Royal Oak, MI 48073  
800-783-7980  
[www.kingswaygroupusa.com](http://www.kingswaygroupusa.com)  
**NOTE:**  
Hinge only, see Item 111g  
Rubber fin only, see item 473e

40g. Sliding Door: Ligature-resistant  
*Ligature Resistant Sliding Door System with Frame*  
Accurate Lock and Hardware  
1 Annie Place  
Stamford, CT 06902  
203-348-8865  
[www.accuratelockandhardware.com](http://www.accuratelockandhardware.com)

**PLEASE NOTE:**

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44b. Wicket doors

**Acrovyn® Barrier-Resistant Doors**
Construction Specialties
3 Werner Way
Lebanon, NJ 08833
800-972-7214
[www.c-sgroup.com](http://www.c-sgroup.com)

44c. Wicket doors

**Behavioral Health Series Patient Room Access Door**
ASSA ABLOY Door Security Solutions
110 Sargent Drive
New Haven, CT 06511
800-377-3948
[www.assaabloydss.com](http://www.assaabloydss.com)

44d. Wicket doors

**Wicket Door (Wood Doors)**
Marshfield Door Systems
1401 East Fourth Street
Marshfield, WI 54449
800-869-3667
[www.marshfielddoors.com](http://www.marshfielddoors.com)

44e. Wicket doors

**GCD-EC Flush Wicket Door with structural composite lumber core**
Graham Wood Door
525 9th St. SE
Mason City, Iowa 50401
641-423-2444
[www.grahamdoors.com](http://www.grahamdoors.com)

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47a. Security sidelight  
**Security Sidelite Unit**  
Curries Company  
1502 12th St. NW  
Mason City, IA 50401  
641-423-1334  
[www.curries.com](http://www.curries.com)

47b. Security sidelight  
**Security SideLite Unit**  
Ceco Door  
9159 Telecom Drive  
Milan, TN 38358  
[www.cecodoor.com](http://www.cecodoor.com)

08 51 13 – ALUMINUM WINDOWS

60a. Aluminum window with integral blind  
**2450 Series Storefront with hinged sash and integral blind**  
Manko Window Systems, Inc.  
800 Hayes Drive  
Manhattan, KS 66502  
800-642-1488  
[www.mankowindows.com](http://www.mankowindows.com)

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60b. Aluminum window with integral blind
  **2187-DT Psychiatric Windows with integral blind**
  Wausau Window and Wall Systems
  7800 International Drive
  Wausau, WI 54401
  877-678-2983
  www.wausauwindow.com

60c. Aluminum window with integral blind - removable
  **SS-5100 Medium-Security Mental Health Security Window**
  Sherwood Windows Group
  37 Iron Street
  Toronto, Ontario M9W 5E3
  Canada
  800-770-5256
  www.sherwoodwindows.com

61a. Exterior windows - ventilation
  **Safevent Windows**
  Britplas
  Unit 18 Kingsland Grange
  Woolston, Warrington WA1 4RW
  England
  +44-1925-824317
  www.britplas.com

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61b. Exterior windows - ventilation

**SW-6300 Operable Security Window**
Sherwood Windows Group
37 Iron Street
Toronto, Ontario M9W 5E3
Canada
800-770-5256
www.sherwoodwindows.com

61c. Exterior windows - ventilation

**512 Ventrow Ventilator**
Kawneer North America
Technology Park / Atlanta
555 Guthridge Court
Norcross, GA 30092
770-449-5555
www.kawneer.com

**08 56 56 - SECURITY WINDOW SCREENS**

80. Security screens

**Security Screens**
Kane Innovations
2250 Powell Avenue
Erie, PA 16506
800-773-2439
www.kanescreens.com

**08 71 00 - DOOR HARDWARE**

100a. Door closer

**Concealed closer #2010 Series**
LCN
121 West Railroad Avenue
P.O. Box 100
Princeton, IL 61356-0100
877-671-7011
http://us.allegion.com/brands/lcn/Pages/default.aspx

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100b. Door closer

*High-security track closer #4510T SMOOTHEE® Series*

LCN
121 West Railroad Avenue
P.O. Box 100
Princeton, IL 61356-0100
877-671-7011

[http://us.allegion.com/brands/lcn/Pages/default.aspx](http://us.allegion.com/brands/lcn/Pages/default.aspx)

101. Electrically controlled door closer

*Fire/Life Safety Series HSA Sentronic Electrically Controlled Closer/Holder*

LCN
121 West Railroad Avenue
P.O. Box 100
Princeton, IL 61356-0100
815-875-3111

[http://us.allegion.com/brands/lcn/Pages/default.aspx](http://us.allegion.com/brands/lcn/Pages/default.aspx)

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109. Electric-release concealed deadbolts

**ELECTRA™ concealed vertical rod latching lever locksets**

Securitech Group, Inc.
54-60 46th Street
Maspeth, NY 11378
800-622-5625
www.securitech.com

110. Electromagnetic lock

**Electromagnetic Locks**

DynaLock Corporation
705 Emmett Street
Bristol, CT 06010
877-396-2562
www.dynalock.com

111a. Continuous hinges – gear type with hospital tip

**780-Series Roton Hinges**

Hager Companies
139 Victor Street
St. Louis, MO 63104
800-325-9995
www.hagerco.com/Product-Listing.aspx?CatID=152&SubCatID=189

111b. Continuous hinges – gear type with hospital tip

**112HD Concealed Continuous Hinge**

Ives
2720 Tobey Dr.
Indianapolis, IN 46219
877-671-7011
http://us.allegion.com

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deemed appropriate for use in this type of facility. Comparable products by other manufacturers that meet the same
design criteria may be substituted after careful comparison. No products are completely without risk. All product
selections should be made in compliance with the findings of the comprehensive safety risk assessment for
each location.
111c. Continuous hinges – gear type with hospital tip

**825-S22 SR™ SR824-S22 SafeSupport Continuous Gear Hinge**

Weizel Security
800-308-3627
www.securinghospitals.com

111d. Continuous hinges – gear type with hospital tip

**Continuous Gear Hinge with hospital tip, mortise mount – DH430**

Behavioral Safety Products
29A N. Main St., Suite 3
Watkinsville, GA 30677
706-705-1500
www.besafepro.com

111e. Continuous hinges – gear type with hospital tip

**Continuous Geared Hinge # KG200**

Kingsway Group USA
2807 Samoset Road, Suite 200
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

111f. Continuous Hinges – gear type with hospital tip

**SL11 Concealed single acting continuous geared hinge**

Select Products Limited
9770 Shaver Road
Portage MI 49024
800-423-1174
www.selecthinges.com

111g. Continuous hinges

**Anti-Ligature Continuous Swing Hinge for Shower w/Cap# KG203**

Kingsway Group USA
2807 Samoset Road, Suite 200
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

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113a. Double-acting continuous hinge

*Double Swing Hinge #DSH1000 Barrel Type*
Markar
P. O. Box 18966
Memphis, TN 38181


113c. Double-acting continuous hinge

*Swing Hinge # KG202*
Kingsway Group USA
2807 Samoset Road
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

113d. Double-acting continuous hinge

*Switch Hinge # KG280*
Kingsway Group USA
2807 Samoset Road
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

115b. Emergency stop

*Emergency Release Stop #ERS*
Pemko Manufacturing Company
5535 Distribution Drive
Memphis, TN 38141
800-824-3018
www.pemko.com

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115c. Emergency stop

Swing Stop # LG205, LG206
Kingsway Group USA
2807 Samoset Road
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

120. Door pull
Vandal-Resistant Door Pull Trim # VR910-DT
Ives
2720 Tobey Dr.
Indianapolis, IN 46219
877-671-7011
http://us.allegion.com

121c. Door pull, recessed

Heavy Duty Security Flush Pull # D89
Rockwood Manufacturing Company
300 Main Street
Rockwood, PA 15557
800-458-2424
www.rockwoodmfg.com

121d. Door pull, recessed

Heavy Duty ADA Security Flush Pull # BF97L
Rockwood Manufacturing Company
300 Main Street
Rockwood, PA 15557
800-458-2424
www.rockwoodmfg.com

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deemed appropriate for use in this type of facility. Comparable products by other manufacturers that meet the same
design criteria may be substituted after careful comparison. No products are completely without risk. All product
selections should be made in compliance with the findings of the comprehensive safety risk assessment for
each location.
130a. Ligature-resistant lever handle lockset

**Anti Ligature Lockset (Mortise and Cylindrical) #SPSL**

Best Access Systems
6161 East 75th Street
Indianapolis, IN 46250
317-849-2250

130b. Ligature-resistant lever handle lockset

**Schlage L Series Extra Heavy Duty Mortise Lock with ligature resistant lever**

Allegion
877-671-7011

130c. Ligature-resistant lever handle lockset

**Series 5SS19 Institutional Life Safety Mortise Locksets - Levers**

Marks USA
365 Bayview Avenue
Amityville, NY 11701
800-526-0233
www.marksusa.com

130d. Ligature-resistant lever handle lockset

**LSL Life Safety Lever Series**

Grainger
100 Grainger Parkway
Lake Forest, IL 60045
800-472-4643
www.grainger.com

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131a. Ligature-resistant modified lever handle lockset

**8200 with BHW Trim**
Sargent Manufacturing Company
100 Sargent Drive
P. O. Box 9725
New Haven, CT 06536-0915
800-727-5477
www.sargentlock.com

131b. Ligature-resistant modified lever handle lockset

**Crescent Handle – horizontal installation**
Accurate Lock and Hardware
1 Annie Place
Stamford, CT 06902
203-348-8865
www.accuratelockandhardware.com

131c. Ligature-resistant modified lever handle lockset

**Securitech; Solis handle available for both mortise and cylindrical locksets**
Securitech Group, Inc.
54-60 46th Street
Maspeth, NY 11378
800-622-5625
http://www.securitech.com/securiguard/

131d. Ligature-resistant modified lever handle lockset

**HD Ligature Resistant Cylindrical Lock CH-CYL Series**
Accurate Lock and Hardware
1 Annie Place
Stamford, CT 06902
203-348-8865
www.accuratelockandhardware.com

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132a. Ligature-resistant lockset
   **Ligature Resistant Push/Pull 9125ALP**
   Accurate Lock and Hardware
   1 Annie Place
   Stamford, CT 06902
   203-348-8865
   [www.accuratelockandhardware.com](http://www.accuratelockandhardware.com)

140. Patient room privacy lockset
   **Patient Room Privacy Lockset**
   Best Access Systems
   6161 East 75th Street
   Indianapolis, IN 46250
   800-392-5209

141a. Cylinder protector
   **Securiguard Cylinder Protector; Model #63LR**
   Securitech Group, Inc.
   54-60 46th Street
   Maspeth, NY 11378
   800-622-5625

141b. Cylinder protector
   **ShieldX Cylinder Protector**
   Grainger
   100 Grainger Parkway
   Lake Forest, IL 60045
   800-472-4643
   [www.grainger.com](http://www.grainger.com)

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143a. Deadbolt

**Deadbolt with ligature-resistant turn piece (retract bolt only) #PBL102-630**

Securitech Group, Inc.
54-60 46th Street
Maspeth, NY 11378
800-622-5625
www.securitech.com

143b. Deadbolt

**Vertical Deadbolt with ligature-resist. turn piece (retract bolt only) #52XXV-F17**

Securitech Group, Inc.
54-60 46th Street
Maspeth, NY 11378
800-622-5625
www.securitech.com

144. Sallyport interlock hardware

**RACHIE™ series lockset package**

Securitech Group, Inc.
54-60 46th Street
Maspeth, NY 11378
800-622-5625
www.securitech.com

145. Remote authorization

**Assa Cliq Remote Authorization System**

Assa Abloy
www.assaboly.com

146. Ball catch

**Dual Adjustable Ball Catch #347**

Ives
2720 Tobey Dr.
Indianapolis, IN 46219
877-671-7011
http://us.allegion.com

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147. Roller latch
   *Roller Latch # RL30*
   Ives
   2720 Tobey Dr.
   Indianapolis, IN 46219
   877-671-7011
   [http://us.allegion.com](http://us.allegion.com)

148. Magnetic latch
   *Super-Mite Heavy Duty Magnetic Catch #327*
   Ives
   2720 Tobey Dr.
   Indianapolis, IN 46219
   877-671-7011
   [http://us.allegion.com](http://us.allegion.com)

150a. Over-door alarm
   *The Door Switch*
   11772 Westline Industrial Drive
   St. Louis, MO 63146
   877-998-5625
   [http://thedoorswitch.com](http://thedoorswitch.com)

150b. Over-door alarm
   *Top Door Alarm®*
   Door Control Services, Inc.
   321 VZ County Road 4500
   Ben Wheeler, TX 75754
   800-356-2025
   [www.doorcontrolservices.com](http://www.doorcontrolservices.com)

150c. Over-door alarm
   *SEDA Door Alarm*
   Best Access Solutions, Inc.
   6161 East 75th Street
   Indianapolis, IN 46250

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150d. Over-door alarm

*LISA-Kit (Life Safety Alarm)*
Grainger
100 Grainger Parkway
Lake Forest, IL 60045
800-472-4643
www.grainger.com

150d. Over-door alarm

*DAISY – Over-the-Door Alarm)*
Securitech Group, Inc.
54-60 46th Street
Maspeth, NY 11378
800-622-5625
www.securitech.com

160a. Seclusion room door locks

*Seclusion Room Lock (surface mount)*
Securitech
54-60 46th Street
Maspeth, NY 11378
800-622-5625
www.securitech.com

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160b. Seclusion room door locks

**Multi-Point Deadbolt Mortise Lock (concealed mount)**

Best Access Systems
6161 East 75th Street
Indianapolis, IN 46250
317-849-2250

160c. Seclusion room door locks

**Schlage; Multipoint Solution # LM9300**

Ingersoll Rand Security Technologies
11819 N. Pennsylvania Street
Carmel, IN 46032 US
877-671-7011
http://us.allegion.com/IRSTDocuments1/104833.pdf

160d. Seclusion room door locks

**Multi-Bolt Concealed Locksets**

Securitech
54-45 44th Street
Maspeth, NY 11378
800-622-5625
www.securitech.com

161. Cross-corridor door locks

**Electra Concealed Vertical Rod Latching Lever Locksets #109**

Securitech
54-45 44th Street
Maspeth, NY 11378
800-622-5625
www.securitech.com

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162. Elopement buffer or sallyport door locks

**RACHIE Entry & Exit Control Systems**

Securitech  
54-45 44th Street  
Maspeth, NY 11378  
800-622-5625  
[www.securitech.com](http://www.securitech.com)

175a. Wall Stops

**KG184 Anti-Ligature Rubber Wall Stop**

Kingsway Group USA  
2807 Samoset Road, Suite 200  
Royal Oak, MI 48073  
800-783-7980  
[www.kingswaygroupusa.com](http://www.kingswaygroupusa.com)

175b. Wall Stops

**KG270-278 Anti-Ligature Extended Rubber Wall Stop**

Kingsway Group USA  
2807 Samoset Road, Suite 200  
Royal Oak, MI 48073  
800-783-7980  
[www.kingswaygroupusa.com](http://www.kingswaygroupusa.com)

**08 87 53 - SECURITY FILMS**

190a. Window film

**Scotchshield™ Ultra – 14 mil Film with Perimeter Attachment System**

3M Specified Construction Products Department  
3M Center  
St. Paul, MN 55144  
888-364-3577  
[www.3m.com](http://www.3m.com)

190b. Window film

**200 Series – Safety and Security Laminate**

ACE (Advanced Coatings Engineering)  
2915 Ogletown Road  
Newark, DE 19713  
888-607-0000  
[www.usace.com](http://www.usace.com)

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08 88 53 - SECURITY GLAZING

200a. Security glazing

121000 or 121100 *ArmorProtect Plus®*
Oldcastle BuildingEnvelope®
5005 LBJ Freeway, Suite 1050
Dallas, TX 75244
866-653-2278
www.obe.com

200b. Security glazing

9/16Psych-2118
Global Security Glazing
616 Selfield Road
Selma, AL 36703
(800) 633-2513
www.security-glazing.com

201a. Polycarbonate sheet glazing – abrasion-resistant

MR10 *LEXAN™ MARGARD™ II Sheet*
SABIC Americas
One Plastics Avenue
Pittsfield, MA 01201
800-323-3783
www.sabic.com

201b. Polycarbonate sheet glazing

Makrolon® GP Sheet
Covestro LLC
1 Covestro Circle
Pittsburgh, PA 15205-9723
877-229-3778
www.sheets.covestro.com

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205a. Fire-rated glazing

*Fireglass; FireLite®*
Technical Glass Products (TGP) (Allegion)
800-426-0279
www.fireglass.com

205b. Fire-rated glazing

*Fireglass; WireLite® - NT*
Technical Glass Products (TGP) (Allegion)
800-426-0279
www.fireglass.com

220a. Vision panels

*Vision panels, key operation*
VISTAMATIC®
11713 NW 39th Street
Coral Springs, FL 33065
866-466-9525
www.vistamaticvisionpanels.com

220b. Vision panels

*Duralux Secure Privacy Vision Panel*
Kingsway Group USA
2807 Samoset Road, Suite 200
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

220c. Vision panels

*ViuLite manual or motorized blinds inside glass panels*
Unicel Architectural Corp.
2155 Fernand Lafontaine Blvd.
Longueuil, Quebec, Canada J4G 2J4
800-668-1580
www.unicelarchitectural.com

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220d. Vision panels

**Between Glass Blinds vision panels**

VISTAMATIC, LLC  
11713 NW 39th Street  
Coral Springs, FL 33065  
866-466-9525  
[www.betweenglassblinds.com](http://www.betweenglassblinds.com)

220e. Vision panels

**IE; Blinds® sealed, integral blind assemblies**

IE Blinds  
P.O. Box 442  
Ben Wheeler, TX 75754  
866-267-1917  
[www.ieblinds.com](http://www.ieblinds.com)

221a. Vision panels

**Clarity Privacy Glass (electric)**

VISTAMATIC®  
11713 NW 39th Street  
Coral Springs, FL 33065  
866-466-9525  
[www.vistamaticvisionpanels.com](http://www.vistamaticvisionpanels.com)

221b. Vision Panels

**Duralux Platinum Switchable Vision Panel (electric)**

Kingsway Group USA  
2807 Samoset Road, Suite 200  
Royal Oak, MI 48073  
800-783-7980  
[www.kingswaygroupusa.com](http://www.kingswaygroupusa.com)

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09 00 00 - FINISHES
09 21 16 - GYPSUM BOARD

230a. Impact-resistant gypsum board
Sheetrock® Brand engineered gypsum panels – abuse-resistant
USG Corporation
550 West Adams Street
Chicago, IL 60661
800-874-4968
www.usg.com

230b. Impact-resistant wallboard
Gold Bond® Brand Hi-Impact® XP® Gypsum Board – moisture- and fire-resistant also has abrasion resistant paper face
National Gypsum Company
2001 Rexford Road
Charlotte, NC 28211
704-365-7300
www.nationalgypsum.com

230c. Impact-resistant wallboard
Extreme Impact Resistant Type X Gypsum Board
CertainTeed Corporation
20 Moores Road
Melvern, PA 19355
800-233-8990
www.certainteed.com

231a. Abrasion-resistant wallboard
Gold Bond® Brand Hi-Abuse® XP® Gypsum Board
National Gypsum Company
2001 Rexford Road
Charlotte, NC 28211
704-365-7300
www.nationalgypsum.com

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231b. Abrasion-resistant wallboard

*Extreme Abuse Resistant Type X Gypsum Board*

CertainTeed Corporation  
20 Moores Road  
Melvern, PA 19355  
800-233-8990  
[www.certainteed.com](http://www.certainteed.com)

232a. Sound-absorbing wallboard

*QuietRock sound-reducing panels*

PABCO® Gypsum  
37851 Cherry Street  
Newark, CA 94560  
800-797-8159  
[www.quietrock.com](http://www.quietrock.com)

232b. Sound-absorbing wallboard

*Silent FX Quick Cut Noise Reducing Type X Gypsum Board*

CertainTeed Corporation  
20 Moores Road  
Melvern, PA 19355  
800-233-8990  
[www.certainteed.com](http://www.certainteed.com)

233a. Sound Attenuation wallboard

*Gold Bond® Soundboard® XP® Gypsum Board*

National Gypsum Company  
2001 Rexford Road  
Charlotte, NC 28211  
704-365-7300  
[www.nationalgypsum.com](http://www.nationalgypsum.com)

234a. Ceiling Accessories

*MBAC – Main Beam Adapter Clip for attaching gyp. bd. to ceiling grid*

Armstrong Ceiling Solutions  
877-276-7876  
[www.armstrongceilings.com](http://www.armstrongceilings.com)

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09 50 00 - CEILINGS
239a. Tamper-resistant ceiling panels
   *Metal Works; Vector*
   Armstrong Ceiling Solutions
   877-276-7876
   www.armstrongceilings.com/

239b. Tamper-resistant ceiling panels
   *Metal Works; Clip-On*
   Armstrong Ceiling Solutions
   877-276-7876
   www.armstrongceilings.com/

09 65 13 - RESILIENT BASE
240. Wall base
   *Health Design™ Wall Base*
   FLEXCO® Corporation
   1401 East 6th Street
   Tuscumbia, AL 35674
   800-633-3151
   www.flexcofloors.com

241a. Wall base
   *Visuelle Wall Base*
   Roppe Corporation, USA
   1602 North Union Street
   Fostoria, OH 44830
   800-537-9527
   www.roppe.com

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241b. Wall base

*Johnsonite “Millwork” Contours Wall Base – PV4065*

Roppe Corporation, USA  
1602 North Union Street  
Fostoria, OH 44830  
800-537-9527  
[www.roppe.com](http://www.roppe.com)

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**09 65 16 - RESILIENT FLOORING**

245a. Sheet vinyl flooring

*Homogeneous Vinyl Sheet Flooring*

Armstrong Flooring, Inc.  
P.O. Box 3025  
Lancaster, PA 17604  
888-276-7876  
[www.armstrong.com](http://www.armstrong.com)

245b. Sheet vinyl flooring

*Noraplan sheet flooring*

nora® systems, Inc.  
9 Northeastern Blvd.  
Salem, NH 03079  
800-332-NORA  
[www.nora.com/us](http://www.nora.com/us)

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09 67 00 - FLUID-APPLIED FLOORING
250a. Seamless floors and base

*Cheminert K flooring*
Dex-O-Tex
Division of Crossfield Products Corp.
140 Valley Road
Roselle Park, NJ 07204
908-245-2800
www.dexotex.com

250b. Seamless floors and base

*Seamless flooring systems*
Dur-A-Flex, Inc.
95 Goodwin Street
East Hartford, CT 06108
877-2 51-5418
www.dur-a-flex.com

250c. Seamless floors and base

*Sika Corp.; Sikafloor – no top edge trim at integral base*
Sika Corporation
201 Polito avenue
Lyndhurst, NJ 07071
800-933-7452
www.sikafloorusa.com

09 68 16 - SHEET CARPETING
255. Carpet

*Mohawk Group GL 182 Exotic Fauna Sheet Carpet with Unibond Plus Bloc backing*
Mohawk Group
160 South Industrial Blvd.
Calhoun, GA 30701
800-554-6637
www.Mohawkgroup.com

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09 77 00 - SPECIAL WALL SURFACING

270a. Wall padding

Gold Medal Safety Padding®
Marathon Engineering Corporation
5615 2nd Street West
Lehigh Acres, FL 33913
239-303-7378
https://goldmedalsafetypadding.com

270b. Wall padding

Surface padding systems
Padded Surfaces by B&E
2339 Distributors Drive
Indianapolis, IN 46241
888-243-8788
http://paddedsurfaces.com

272. Seclusion room wall and floor material

Lonfloor Plain – smooth
Lonseal, Inc.
928 East 238th Street
Carson, CA 90745
800-832-7111
www.lonseal.com

09 96 13 – ABRASION RESISTANT COATINGS

280. Wall finish (do not use on floors)

Sto; Decocoat®
Sto Americas
3800 Camp Creek Parkway SW
Building 1400, Suite 120
Atlanta, GA 30331
800-221-2397
www.stocorp.com

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10 00 00 – SPECIALTIES

10 12 00 – DISPLAY CASES

290a. TV enclosure – suicide-resistant

**TE450 Ligature-Resistant Protective TV Enclosure**

Behavioral Safety Products
29A N. Main St., Suite 3
Watkinsville, GA 30677
706-705-1500
[www.besafepro.com](http://www.besafepro.com)

290b. TV Enclosure – suicide resistant

**Protective Enclosures, FPE55F(H)-S**

Peerless A-V
2300 White Oak Circle
Aurora, IL 60502
800-865-2112
[www.perlessmounts.com](http://www.perlessmounts.com)

290c. TV enclosure – suicide-resistant

**Ligature-resistant TV enclosure**

ProEnc
101 Hudson Street
Jersey City, NJ 07302
862-234-5981
[www.lcdtvenclosure.com](http://www.lcdtvenclosure.com)

10 14 00 – SIGNAGE

300a. Room signs

**Flxsigns**

2/90 Sign Systems
5350 Corporate Grove Blvd. SE
Grand Rapids, MI 49512
800-777-4310
[http://www.290signs.com](http://www.290signs.com)

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300b. Room signs

Secure + spec
Creative Signage Systems, Inc.
9101 51st Place
College Park, MD 20740
800-220-7446
www.creativesignage.com

300c. Room signs

KING KMS® Modular Sign System
King Architectural Products
31 Simpson Road
Bolton, ON, Canada, L7E 2R6
877-857-2804
www.kingarchitecturalproducts.com

300d. Room signs

Safecare Signs
2/90 Sign Systems
5350 Corporate Grove Blvd. SE
Grand Rapids, MI 49512
800-777-4310
http://www.290signs.com

10 26 16.16 – PROTECTIVE CORRIDOR HANDRAILS

330a. Corridor handrail

Acrovyn® ligature-resistant handrail with continuous aluminum mounting bracket
Construction Specialties
6696 State Road 405
Muncy, PA 17756
800-233-8493
www.c-sgroup.com

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10 26 23 – PROTECTIVE WALL COVERING

320a. Synthetic wall protection

Avonite® Acrylic products - Wall Protection
Avonite
1945 Highway 304
Belen, NM 87002
800-4-AVONITE
www.avonitesurfaces.com

320b. Synthetic wall protection

Acrovyn by Design® Wall Protection
Construction Specialties
6696 State Road 405
Muncy, PA 17756
800-233-8493
www.c-sgroup.com

320b. Synthetic wall protection

Ricochet Flexible Wall Protection
Inpro Corporation
S80 W18766 Apollo Drive
Muskego, WI 53150
800-222-5556
inprocorp.com

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### 10 28 13 - SECURITY TOILET ACCESSORIES

332a. Grab bar  
*Anti-Ligature Grab Bar KG270-278*  
Kingsway Group USA  
2807 Samoset Road, Suite 200  
Royal Oak, MI 48073  
800-783-7980  
[www.kingswaygroupusa.com](http://www.kingswaygroupusa.com)

332b. Grab bar  
*Ligature - Resistant Grab Bar #GB730*  
Behavioral Safety Products  
29A N. Main St., Suite 3  
Watkinsville, GA 30677  
706-705-1500  
[www.besafepro.com](http://www.besafepro.com)

332c. Grab bar  
*S A F E B A R® grab bar*  
Cascade Specialty Hardware, Inc.  
1413 Lincoln Avenue  
Vancouver, WA 98660  
360-823-3995  
[www.cascadesh.com](http://www.cascadesh.com)

332d. Grab bar  
*SafeSupport® Safe-T Grab Bar #811-S01*  
Weizel Security  
800-308-3627  

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332e. Grab bar

**NW SecurityBar®**
Northwest Specialty Hardware, Inc.
15865 SE 114th Avenue, Suite C
Clackamas, OR 97015
503-557-1881
http://www.northwestsh.com/

337. Grab bar – vertical

**SP-3V Vertical Grab Bar**
Odd Ball Industries
P.O. Box 376
Greenlawn, NY 11740
631-754-0400
www.oddballindustries.com

340. Paper towel dispenser

**Paper Towel Dispenser Cover #817-S45 SR™**
Weizel Security
800-308-3627
www.securinghospitals.com

340b. Paper towel dispenser

**Paper Towel Dispenser # KG02**
Kingsway Group USA
2807 Samoset Road, Suite 200
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

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341. Roll Paper Towel Dispenser

Roll Paper Towel Dispenser #WH1848B
Whitehall Manufacturing
P.O. Box 3257
City of Industry, CA 91744
1-800-782-7706
www.whitehallmfg.com

350a. Robe hook – break-away

Robe/Towel Hook # SP6
Odd Ball Industries Mfg. Co., Inc.
P.O. Box 376
Greenlawn, NY 11740
1-631-754-0400
http://www.oddballindustries.com

350b. Robe hook – break-away

SafeSupport SR Collapsible Towel Hook # SR813-S08
Weizel Security
800-308-3627
http://www.securinghospitals.com/

350c. Robe hook – break-away

Vandal Resistant Clothes Hook # B983
Bradley Corporation
PO. Box 309
Menomonee Falls, WI 53052
1-800-BRADLEY
http://www.bradleycorp.com

350d. Robe hook – break-away

Clothes Hook #NW 608
Northwest Specialty Hardware, Inc.
15865 SE 1143th Avenue, Suite C
Clackamas, OR 97015
503-557-1881
http://www.northwestsh.com/

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350e. Robe hook – breakaway

**Coat Hook # KG180**
Kingsway Group USA
2807 Samoset Road, Suite 200
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

360a. Security Mirrors

**Hybrid Safety Mirror in Guardian Frame**
RAO Contract Sales, Inc.
392 Atwood Place
Wyckoff, NJ 07481
800-445-7065
www.rao.com

360b. Security Mirrors

**ROVAL™ stainless steel mirror #20650-B**
American Specialties, Inc.
441 Saw Mill River Road
Yonkers, NY 10701
914-476-9000
www.americanspecialties.com

360c. Security Mirrors

**Security mirror #JOC-161**
McGrory Glass Inc.
1400 Grandview Avenue
Paulsboro, NJ 08066
856-579-3200
www.mcgrory-glass.com

361a. Mirror guard

**Mirror Guard # SP-8**
Odd Ball Industries
P.O. Box 376
Greenlawn, NY 11740
631-754-0400
www.oddballindustries.com

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370a. Recessed shelf
   **Ligature-Resistant Recessed Shelf (front mount through flange) # RS780**
   Behavioral Safety Products
   29A N. Main St., Suite 3
   Watkinsville, GA 30677
   706-705-1500
   [www.besafepro.com](http://www.besafepro.com)

370b. Recessed Shelf
   **Ligature-Resistant Recessed Shelf (front mount through flange) # KG12**
   Kingsway Group USA
   2807 Samoset Road, Suite 200
   Royal Oak, MI 48073
   800-783-7980
   [www.kingswaygroupusa.com](http://www.kingswaygroupusa.com)

370c. Recessed shelf
   **BestCare® Recessed Shelf (front mount through flange) # WH1820FA**
   Whitehall Manufacturing
   P.O. Box 3527
   City of Industry, CA 91744-0527
   800-782-7706
   [www.whitehallmfg.com](http://www.whitehallmfg.com)

370d. Recessed shelf
   **Recessed Shelf (front mount through side) # Model 412**
   American Specialties, Inc.
   441 Saw Mill River Road
   Yonkers, NY 10701
   914-476-9000

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371c. Shelf – surface-mounted

**Bookshelf # SA56**
Bradley Corporation
W142N9101 Fountain Boulevard
Menomonee Falls, WI 53051
800-272-3539
www.bradleycorp.com

380a. Shower seat

**ADA Shower Seat**
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

380b. Shower seat

**ADA Shower Seat**
Brey-Krause Manufacturing Co.
1209 W. Lehigh Street
Bethlehem, PA 18018
610-867-1401
www.breykrause.com

390a. Soap Dish

**Bestcare Bathroom Accessory Solutions #WH1832-PF (front mount with plaster flange)**
Whitehall Manufacturing
P.O. Box 3257
City of Industry, CA 91744
1-800-782-7706
www.whitehallmfg.com

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390b. Soap dish

*Norix Group Inc.; Recessed Soap Dish (rear mount)*

Norix Group, Inc.
1000 Atlantic Drive
West Chicago, IL 60185
1-800-234-4900
http://www.norix.com

391a. Soap dispenser

*KG08 Manual Soap Dispenser – Gojo Compatible*

Kingsway Group USA
2807 Samoset Road, Suite 200
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

391b. Soap dispenser

*ADX-12™ Security Enclosure*

GOJO Industries, Inc.
One GOJO Plaza, Suite 500
Akron, OH 44309
800-321-9647
www.gojo.com

391c. Soap dispenser

*Suicide Prevention Soap Dispenser*

Norva Plastics, Inc.
3911 Killam Ave.
Norfolk, VA 23508
800-826-0758
www.norvaplastics.com

400a. Toilet paper holder

*Toilet Roll Holder # KG13*

Kingsway Group USA
2807 Samoset Road, Suite 200
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

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400b. Toilet paper holder

*Toilet Roll Holder #WH1847B Series* (Recessed model (1845B) also available)
Whitehall Manufacturing
P.O. Box 3257
City of Industry, CA 91744
1-800-782-7706
www.whitehallmfg.com

400c Toilet paper holder

*Surface Mount Toilet Roll Holder # KG03*
Kingsway Group USA
2807 Samoset Road, Suite 200
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

400d Toilet paper holder

*Ligature Resistant Toilet Roll Holder #TRH02*
Intersan Manufacturing Company
1748 West Fillmore Street
Phoenix, AZ 85007
602-254-3101
www.intersan.us

400f. Toilet paper holder

*Safety Toilet Paper Holder #C-400*
Cascade Specialty Hardware, Inc.
1413 Lincoln Avenue
Vancouver, WA 98660
360-823-3995
www.cascadesh.com

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400g. Toilet paper holder

**BestCare® Recessed Auto-Release Toilet Paper Holder – front mount # WH1845A**

Whitehall Manufacturing
P.O. Box 3527
City of Industry, CA 91744-0527
800-782-7706
www.whitehallmfg.com

400h. Toilet paper holder

**Suicide-Resistant Toilet Paper Dispenser**

Norva Plastics, Inc.
3911 Killam Ave.
Norfolk, VA 23508
800-826-0758
www.norvaplastics.com

410a. Undersink protection

**Truebro® Lav Shield®**

IPS® Corporation
455 W. Victoria Street
Compton, CA 90220
310-898-3300
www.truebro.com

410b. Undersink protection

**Undersink Enclosure #831-S27 SR™**

Weizel Security
800-308-3627
www.securinghospitals.com

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10 86 00 – SECURITY MIRRORS AND DOMES

420a. Convex mirrors

*DuraVision Quarter Dome Mirror*

Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

12 00 00 - FURNISHINGS

12 21 13 – HORIZONTAL LOUVER BLINDS

430a. Aluminum window with integral blind

*Storefront with hinged sash and integral blind #2450 Series*

Manko Window Systems, Inc.
800 Hayes Drive
Manhattan, KS 66502
800-642-1488
www.mankowindows.com

430b. Aluminum window with integral blind

*Psychiatric Windows with integral blind #2187-DT*

Wausau Window and Wall Systems
7800 International Drive
Wausau, WI 54401
877-678-2983
www.wausauwindow.com

430c. Aluminum window with integral blind - removable

*Medium-Security Mental Health Security Window # SS-5100*

Sherwood Windows Group
37 Iron Street
Toronto, Ontario M9W 5E3
Canada
800-770- 5256
www.sherwoodwindows.com

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434a. Exterior windows - ventilation

**Safevent Windows**
Britplas
Unit 18 Kingsland Grange
Woolston, Warrington WA1 4RW
England
+44-1925-824317
www.britplas.com

434b. Exterior windows - ventilation

**Operable Security Window # SW-6300**
Sherwood Windows Group
37 Iron Street
Toronto, Ontario M9W 5E3
Canada
800-770-5256
www.sherwoodwindows.com

434c. Exterior windows - ventilation

**512 Ventrow Ventilator**
Kawneer North America
Technology Park / Atlanta
555 Guthridge Court
Norcross, GA 30092
770-449-5555
www.kawneer.com

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deemed appropriate for use in this type of facility. Comparable products by other manufacturers that meet the same
design criteria may be substituted after careful comparison. No products are completely without risk. **All product**
selections should be made in compliance with the findings of the comprehensive safety risk assessment for
each location.
12 21 33 – ROLL-DOWN BLINDS

440a. Roller blinds

*Webb Lok cordless roller shades*

Inpro
S80 W18766 Apollo Drive
Muskego, WI 53150
800-222-5556
https://www.inprocorp.com/clickeze-privacy-systems/specialty-window-shades

12 35 70 – HEALTHCARE CASE WORK

460a. Cabinet pulls

*Cabinet Pull # DP74C*
Doug Mockett & Company, Inc.
1915 Abalone Ave.
Torrance, CA 90501
800-523-1269
www.mockett.com

460b. Cabinet pulls

*Zinc Handle – polished chrome finish #104.66.200*
Hafele America Co.
3901 Cheyenne Drive
Archdale, NC 27263
800-423-3531
www.hafele.com/us/en

460c. Cabinet pulls

*Arc Cabinet Pull #DP18*
Doug Mockett & Company, Inc.
1915 Abalone Ave.
Torrance, CA 90501
800-523-1269
www.mockett.com

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465a. Cabinet locks – keyless

**eLock®: Cabinet version #300 Series**
CompX Security Products
847-752-2500
www.compxelock.com

465b. Cabinet locks – keyless

**dialock**
Hafele America Co.
800-423-3531
www.hafele.com/us/en

465c. Cabinet locks – keyless

**eLock: Cabinet Version #100 Series**
CompX Security Products
P. O. Box 200
Mauldin, SC 29662
864-297-6655
www.compxelock.com

470a. Tamper-resistant screws

**Socket Security & Torx Security**
Tamperproof Screw Company, Inc.
30 Laurel Street
Hicksville, NY 11801
516-931-1616
www.tamperproof.com

470b. Tamper-resistant screws

**Security Pin Torx Screws and Bits**
Northwest Specialty Hardware, Inc.
15865 SE 114th Avenue, Suite C
Clackamas, OR 97015
503-557-1881
www.northwestsh.com

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deemed appropriate for use in this type of facility. Comparable products by other manufacturers that meet the same
design criteria may be substituted after careful comparison. No products are completely without risk. All product
selections should be made in compliance with the findings of the comprehensive safety risk assessment for
each location.
12 44 16 – SHOWER DOORS

473a. Shower doors

**Sentinel Event Reduction Shower Door**
Norva Plastics, Inc.
3911 Killam Ave.
Norfolk, VA 23508
800-826-0758
www.norvaplastics.com

473b. Shower doors

**Soft Suicide Prevention Door**
Kennon Products, Inc.
2071 North Main Street
Sheridan, WY 82801
307-674-6498
www.suicideproofing.com

473c. Shower doors

**En-Suite Patient Bathroom Door w/ Shower Door Option: #SHDUS02**
Kingsway Group USA
2807 Samoset Road
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

473d. Shower door hinge

**SwingHinge double action continuous hinge for SHOWER DOOR with surface cap and hinge cover plate # KG203**
Kingsway Group USA
2807 Samoset Road, Suite 200
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

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473e. Shower door rubber fin

*Shower System Rubber Fin and mounting Section with top fixing bracket #SRF01*

Kingsway Group USA
2807 Samoset Road, Suite 200
Royal Oak, MI 48073
800-783-7980
www.kingswaygroupusa.com

12 46 23 – DECORATIVE CRAFTS

475. Vinyl artwork

*Soft Suicide Prevention Artwork (SSPA)*

Kennon Products, Inc.
2071 N. Main Street
Sheridan, WY 82801
307-674-6498
www.suicideproofing.com

476a. Ligature-resistant frames

*Solid surface frames*

Custom Design Frameworks
3998 Fox Hunter Lane
Mechanicsville, VA 23111
804-476-4233
www.customdesignframeworks.com

476b. Ligature-resistant frames

*AF550 Ligature-Resistant Art Frame*

Behavioral Safety Products
29A N. Main St., Suite 3
Watkinsville, GA 30677
706-705-1500
www.besafepro.com

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476c. Display boards

*Tak-Les Bulletin Board with Guardian Frame*
RAO Contract Sales, Inc.
94 Fulton Street
Paterson, NJ 07501
800-445-7065
www.rao.com

**12 52 70 - HEALTHCARE SEATING**

479a. Stools

**OFS Brands; Boost Ottoman**
OFS Brands
1204 East Sixth Street
Huntingburg, IN 47542
800-521-5381
www.info@ofsbrands.com

479b. Stools

**Norix: Slammer Stool Series**
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

480a. Sand-ballasted seating

**Ultra-Max Series**
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

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480b. Sand-ballasted seating

**Pineapple; Skye Plus ASKYP1-400**

Pineapple Contracts
1238 Anderson Court
Clawson, MI 48017
800-496-9324
www.pineapplecontracts.com

480c. Sand-ballasted seating

**Hardi Series Dining Chair #8701**

Spec Furniture Inc.
65 City View Drive
Toronto, Ontario M9W 5B1
Canada
888-761-7732
www.specfurniture.com

481a. Lightweight seating

**Integra Series chairs**

Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

481b. Lightweight seating

**RazorBack Chair**

Cortech® USA
7530 Plaza Court
Willowbrook, IL 60527
800-571-0770
www.cortechusa.com

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481c. Lightweight seating

*Stackable chair #5000-20 Modumaxx*
Moduform
172 Industrial Road
Fitchburg, MA 01420
800-221-6638
www.moduform.com

481d. Lightweight seating

*Boden Series seating*
Pineapple Contracts, Inc.
1238 Anderson Court
Clawson, MI 48017
800-496-9324
www.pineapplecontracts.com

482a. Upholstered seating

*Sierra Series chairs with solid end arms*
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

482b. Upholstered seating

*Meridian Behavioral Health Seating – chair # ML30/27BH*
Nemschoff
909 North 8th Street
Sheboygan, WI 53081
800-203-8916
www.nemschoff.com

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482c. Upholstered seating

**Endurance Series**
Blockhouse Company, Inc.
3285 Farmtrail Road
York, PA 17406
800-346-1126
www.blockhouse.com

482d. Upholstered seating

**Dignity Series #4501M**
Spec Furniture Inc.
65 City View Drive
Toronto, Ontario M9W 5B1
Canada
888-761-7732
www.specfurniture.com

482e. Upholstered seating

**Carrara**
Kwalu
6160 Peachtree Dunwoody Rd., Building C
Atlanta, GA 30328
877-695-9258
www.kwalu.com

482f. Upholstered seating

**Arcadia Series**
Blockhouse Company, Inc.
3285 Farmtrail Road
York, PA 17406
800-346-1126
www.blockhouse.com

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482g. Upholstered seating

**Skye Plus ASKYP1-400**
Pineapple Contracts, Inc.
1238 Anderson Court
Clawson, MI 48017
800-496-9324
[www.pineapplecontracts.com](http://www.pineapplecontracts.com)

482h. Upholstered seating

**Domus Lounge Seating**
Pineapple Contracts, Inc.
1238 Anderson Court
Clawson, MI 48017
800-496-9324
[www.pineapplecontracts.com](http://www.pineapplecontracts.com)

482i. Upholstered seating

**Chaise Lounge Chair**
Blockhouse Company, Inc.
3285 Farmtrail Road
York, PA 17406
800-346-1126
[www.blockhouse.com](http://www.blockhouse.com)

483a. Rockers

**RockSmart**
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
[www.norix.com](http://www.norix.com)

483b. Rockers

**Hardi Rocking Chair**
Spec Furniture
888-761-7732
[specfurniture.com](http://specfurniture.com)

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483c. Rockers

*Endurance Series Rocker*
Blockhouse Company, Inc.
3285 Farmtrail Road
York, PA 17406
800-346-1126
[www.blockhouse.com](http://www.blockhouse.com)

483a. PVC molded seating

*Forté™ Lounge*
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
[www.norix.com](http://www.norix.com)

484d. PVC molded seating

*Hondo® Nuevo*
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
[www.norix.com](http://www.norix.com)

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12 56 70 - HEALTHCARE FURNITURE

485a. Tables

*Jupiter Series Tables*
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
[www.norix.com](http://www.norix.com)

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485b. Tables

Madera Series Tables
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

490a. Electrically adjustable hospital bed

Behavioral Health Bed™
Sizewise
8601 Monrovia Street
Lenexa, KS 66215
800-814-9389
www.sizewise.com

490b. Electrically adjustable hospital bed

Spirit Bed with Mental Health Package
CHG Hospital Beds
1020 Adelaide Street S.
London, ON N6E 1R6
Canada
866-516-5446
www.chgbeds.com

490c. Electrically adjustable hospital bed

MedSurg Bed #S3
Stryker
2825 Airview Avenue
Kalamazoo, MI 49002
269-385-2600
www.stryker.com

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490d. Electrically adjustable hospital bed

**Mental Health Electric Bed**
Umano Medical, Inc.
230, boul. Nilus-Lcclerc L’;slet QC
G0R 2Co, Canada
1-844-409-4030
[www.umanomedical.com](http://www.umanomedical.com)

491a. Bedding

**One Piece Comfort and Safety Linen**
Harm Reduction Solutions
4231Balboa Avenue #308
San Diego, CA 92117
858-500-2110
[www.harmreductionsolutions.com](http://www.harmreductionsolutions.com)

492b. Behavioral health mattresses

**Comfort Shield® Remedy Sealed Seam Mattress**
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
[www.norix.com](http://www.norix.com)

492c. Behavioral Health Mattresses

**Victory Series Mattresses**
Sizewise
1600 Genessee, Suite 950
Kansas City, MO 64102
800-814-9389
[www.sizewise.net](http://www.sizewise.net)

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492d. Behavioral health mattresses

**Behavioral Health Mattress with Bed Bug Protection & BioArmour™ Infection Control Composite Lamination Surface**

American Innovation Products
12004 Trinity Road
Trinity, NC 27370
814-490-0660
www.americaninnovationproducts.com

492e. Behavioral health mattresses

**Closed System™ Behavioral Health Mattress**

Comfor tex®
1680 Wilkie Drive
Winona, MN 55987
800-445-4007
www.comfortexinc.com

493a. Platform bed

**Roto Cast Series**

Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

493d. Platform bed

**Behavioral Health Beds # BHBP/68 and BHHD/68**

Nemschoff
909 North 8th Street
Sheboygan, WI 53081
800-203-8916
www.nemschoff.com/

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493e. Platform bed

*Endurance Bed*

Cortech® USA  
7530 Plaza Court  
Willowbrook, IL 60527  
800-571-0770  
[www.cortechusa.com](http://www.cortechusa.com)

493f. Platform bed

*Pineapple; Sovie Bed 1SVFA-100*

Pineapple Contracts, Inc.  
1238 Anderson Court  
Clawson, MI 48017  
800-496-9324  
[www.pineapplecontracts.com](http://www.pineapplecontracts.com)

493g. Platform bed

*Behavioral Health Bed™ - Platform*

Sizewise  
8601 Monrovia Street  
Lenexa, KS 66215  
800-814-9389  
[www.sizewise.com](http://www.sizewise.com)

493h. Platform bed

*Frontier bed*

Stance Healthcare  
45 Goodrich Dr.  
Kitchener, ON N2C 0B8  
877-395-2623  
[www.stancehealthcare.com](http://www.stancehealthcare.com)

494a. Platform bed – lift-accessible

*Sleigh Bed*

Norix Group, Inc.  
1800 W. Hawthorne Lane, Suite N  
West Chicago, IL 60185  
800-234-4900  
[www.norix.com](http://www.norix.com)

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494b. Platform bed riser – lift-accessible

**Platform Bed Riser**
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

495a. Patient room furniture

**VISTA Series**
Blockhouse Company, Inc.
3285 Farmtrail Road
York, PA 17406
800-346-1126
www.blockhouse.com

495b. Patient room furniture

**Safehouse Series**
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

495c. Patient room furniture

**Safe & Tough series**
This End Up® Furniture Company, Inc.
500 N. 7th Street
Sanford, NC 27331
800-605-2130
www.thisendup.com/groupliving.com

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495d. Patient room furniture

**Endurance Series**
Cortech® USA
7530 Plaza Court
Willowbrook, IL 60527
800-571-0770
www.cortechusa.com

495e. Patient room furniture

**Attenda Series**
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

496a. Patient room furniture

**Attenda Series**
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

496b. Patient room furniture

**Fortress Wardrobes**
Moduform
172 Industrial Road
Fitchburg, MA 01420
800-221-6638
www.moduform.com

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496e. Patient Room Furniture

*Frontier bedside cabinet – flip style*
Stance Healthcare
45 Goodrich Dr.
Kitchener, ON N2C 0B8
877-395-2623
www.stancehealthcare.com

497a. Restraint bed

*450 Series Seclusion Beds (restraint loops optional)*
Moduform
172 Industrial Road
Fitchburg, MA 01420
800-221-6638
www.moduform.com

497a. Restraint bed

*Duraguard bed with side bars*
Glasspec Corporation
P.O. Box 560116
Miami, FL 33256-0116
800-328-0888
www.glasspec.com

498a. Removable Restraint Loops

*Attenda Restraint Rings (for use with Attenda beds)*
Norix Group, Inc.
1800 W. Hawthorne Lane, Suite N
West Chicago, IL 60185
800-234-4900
www.norix.com

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498b. Removable Restraint Loops

Removable Restraint Loop
SydLo Design LLC
South Range, Wisconsin
218-310-4351
lrwendi02@gmail.com

499a. Nurse servers

WALLAroo®
Carstens®, Inc.
7310 West Wilson Avenue
Chicago, IL 60706
800-782-1524
www.carstens.com

499b. Nurse servers

Proximity EXT-28
Proximity Systems
800-437-8111
www.proximiitysystems.com

12 93 43 - SITE FURNISHINGS - SEATING AND TABLES

510. Outdoor Furniture

Hilltop Outdoor Furniture
Norix Group, Inc.
1000 Atlantic Drive
West Chicago, IL 60185
1-800-234-4900
http://www.norix.com

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21 00 00 - FIRE SUPPRESSION
21 13 13 - FIRE SUPPRESSION SPRINKLER SYSTEMS

520a. Fire sprinklers
*Raven 5.6K Institutional Sprinklers*
TYCO Fire Protection Products
1400 Pennbrook Parkway
Lansdale, PA 19446
800-523-6512
www.tyco-fire.com

520b. Fire sprinklers
*819-S17 SR Sprinkler*
Weizel Security
800-308-3627
www.securinghospitals.com

521a. Fire extinguisher cabinet
*BestCare® Ligature-Resistant Recessed Fire Extinguisher Cabinet WH1704*
Whitehall Manufacturing
P.O. Box 3527
City of Industry, CA 91744-0527
800-782-7706
www.whitehallmfg.com

22 43 00 - HEALTHCARE PLUMBING FIXTURES
22 43 13 - HEALTHCARE WATER CLOSETS

531. Toilet fixture, ADA– floor-mounted, back outlet
*Huron EverClean Flushometer Toilet with integral seat*
American Standard
1 Centennial Avenue
Piscataway, NJ 08855
800-488-8049
www.americanstandard-us.com

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533. Solid-surface toilet fixture

*CWC-156 AST-FF Behavioral HealthCare Toilet*
Intersan Manufacturing Company
1748 West Fillmore Street
Phoenix, AZ 85007
602-254-3101
www.intersan.us

534a. Stainless steel toilet

*ETW-1490 Series*
Willoughby Industries
5105 West 78th Street
Indianapolis, IN 46268
800-428-4065
www.willoughby-ind.com

534b. Toilet fixture – stainless steel

*BestCare® Ligature-Resistant Toilet, Wall Supply, WH2142-W*
Whitehall Manufacturing
P.O. Box 3257
City of Industry, CA 91744
800-782-7706
www.whitehallmfg.com

536. Bariatric toilet fixtures

*BET-1490 Series – Bariatric toilets*
Willoughby Industries
5105 West 78th Street
Indianapolis, IN 46268
800-428-4065
www.willoughby-ind.com

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22 43 16 - HEALTHCARE SINKS

540a. Wall-Hung Corner Lavatories
   **BestCare® Ligature-Resistant, ADA Compliant Corterra Cast Solid Surface Corner Basin; WH3776 Series**
   Whiteall Manufacturing
   P.O. Box 3527
   City of Industry, CA 91744-0527
   800-782-7706
   www.whitehallmfg.com

540b. Wall-Hung Corner Lavatories
   **Ligature Resistant Solid Surface Wall-Hung Corner Lav.; CWC270**
   Intersan Manufacturing Company
   1748 West Fillmore Street
   Phoenix, AZ 85007
   602-254-3101
   www.intersan.us

541a. Wall-Hung Lavatories
   **HSL1 SafeCare Ligature-Resistant Lavatory – stainless steel or high-impact polymer trap cover**
   Bradley Corporation
   W142N9101 Fountain Boulevard
   Menomonee Falls, WI 53051
   800-272-3539
   www.bradleycorp.com

541c. Wall-Hung Lavatories
   **Saniwave lavatory with extensions**
   Intersan Manufacturing Company
   1748 West Fillmore Street
   Phoenix, AZ 85007
   602-254-3101
   www.intersan.us

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542a. Vanity top lavatory

**Suicide Prevention Patient Sink Faucet**
Norva Plastics, Inc  
3911 Killam Ave.  
Norfolk, VA 23508  
800-826-0758  
www.norvaplastics.com

542b. Vanity top lavatory

**Avonite® Acrylic Solid Surfaces**
Avonite Surfaces  
7350 Empire Drive  
Florence, KY 41042  
800-354-9858  
www.avonite.com

545. Hand Washing

**Wallgate; Thrii (soap, water, drying)**
Intersan Manufacturing Company  
1748 West Fillmore Street  
Phoenix, AZ 85007  
602-254-3101  
www.intersan.us

22 43 19 - HEALTHCARE BATHTUBS AND SHOWERS

550a. Shower head – ligature resistant

**SP-7 Shower Head**
Odd Ball Industries Mfg. Co., Inc.  
P.O. Box 376  
Greenlawn, NY 11740  
631-754-0400  
www.oddballindustries.com

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550c. Shower head – ligature resistant
   **Ligature-Resistant Shower Head – SH330**
   Behavioral Safety Products
   29A N. Main St., Suite 3
   Watkinsville, GA 30677
   706-705-1500
   [www.besafepro.com](http://www.besafepro.com)

552a. Shower Control Valve
   **WH538-CSH Ligature-Resistant Shower Head and Valve**
   Whitehall Manufacturing
   P.O. Box 3527
   City of Industry, CA 91744-0527
   800-782-7706
   [www.whitehallmfg.com](http://www.whitehallmfg.com)

552b. Shower valve
   **Ligature-Resistant Shower Valve – SV230**
   Behavioral Safety Products
   29A N. Main St., Suite 3
   Watkinsville, GA 30677
   706-705-1500
   [www.besafepro.com](http://www.besafepro.com)

552c. Shower valve
   **834-S40 SRT™ Retrofit Shower Knob**
   Weizel Security
   800-308-3627
   [www.securinghospitals.com](http://www.securinghospitals.com)

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552d. Shower valve

**Sense™ DMV2 – Individual Shower concealed electronic mixing valve with optional stainless steel cover**

Armstrong International
816 Maple Street
Three Rivers, MI 49093
269-273-1415
[www.armstronginternational.com](http://www.armstronginternational.com)

555a. Shower diverter valve

**834-SN2 SR™ Diverter Valve Assembly**

Weizel Security
800-308-3627
[www.securinghospitals.com](http://www.securinghospitals.com)

560a. Shower assembly

**BestCare® Flush-Mount Ligature-Resistant Security Shower WH1741-CSH**

Whitehall Manufacturing
P.O. Box 3527
City of Industry, CA 91744-0527
800-782-7706
[www.whitehallmfg.com](http://www.whitehallmfg.com)

560b. Shower assembly

**SR834-S35 SR™ Shower Panel**

Weizel Security
800-308-3627
[www.securinghospitals.com](http://www.securinghospitals.com)

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560c. Shower assembly

*Ligature-Resistant Shower Panel #SV710*
Behavioral Safety Products
29A N. Main St., Suite 3
Watkinsville, GA 30677
706-705-1500
www.besafepro.com

562. Shower assembly – recessed hand-held

*M0418-E508 in locking box*
Acorn Engineering
15125 Proctor Avenue
City of Industry, CA 91746
800-488-8999
www.acorneng.com

563a. Shower assembly – handicapped accessible

*Dual Quick Connect – Wall Mounted Shower Head with Integral Diverter #42020US*
Intersan Manufacturing Company
1748 West Fillmore Street
Phoenix, AZ 85007
602-254-3101
www.intersan.us

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563b. Shower assembly – handicapped accessible

*Quick release hand held shower head; Model 40707*

Intersan Manufacturing Company
1748 West Fillmore Street
Phoenix, AZ 85007
800-999-3101
www.intersan.com

563c. Shower assembly – handicapped accessible

*BestCare® Flush-Mount Ligature-Resistant Security Shower with Dual Heads WH1741-FH-CSH*

Whitehall Manufacturing
P.O. Box 3527
City of Industry, CA 91744-0527
800-782-7706
www.whitehallmfg.com

**22 43 23 – SHOWER RECEPTORS AND BASINS**

564a. Shower linear drain

*ProLine drain with “dots” cover*

QuickDrain USA
101 W. Main Street #206
Frisco, CO 80443
866-998-6685
www.quickdrainusa.com

564b. Shower floor basin

*Roll-in shower with front trench*

Watermark
2969 armory Drive, Suite 400
Nashville, TN 37204
615-291-6111
www.watermarksolidsurface.com/product-category/all-shower-systems/5

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564c. Shower floor basin

**AquaSurf solid surface shower bases**
Willoughby Industries
5105 West 78th Street
Indianapolis, IN 46268
800-428-4065
www.willoughby-ind.com

565a. Ligature Resistant Drain Cover

**Crocodile Roll Resistant Floor Drain; 303070X**
Intersan Manufacturing Company
1748 West Fillmore Street
Phoenix, AZ 85007
800-999-3101
www.intersanus.com

565b. Ligature Resistant Drain Cover

**Tower Industries; Anti-Ligature Drain Cover – Model SDC-AL-1-S**
Tower Industries
2101 Ninth Street SW
Massillon, OH 44647
330-837-2216
www.towershowers.com

565c. Ligature Resistant Drain Cover

**BestCare® Ligature-Resistant Floor Drain Grate WHDG Series**
Whitehall Manufacturing
15125 Proctor Avenue
City of Industry, CA 91746
800-782-7706
www.whitehallmfg.com

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565d. Ligature Resistant Drain Cover

*BestCare® Ligature-Resistant Linear Drain with Flashing Flange WHLD Series*

Whitehall Manufacturing
15125 Proctor Avenue
City of Industry, CA 91746
800-782-7706
www.whitehallmfg.com

566. One-piece patient toilet room floor

*UniFloor*

Bestbath®
723 Garber Street
Caldwell, ID 83605
800-727-9907
www.bestbath.com

567. Shower floor basin

*The Swan Corporation, Swanstone Solid Surface Shower Floors*

The Swan Corporation
One City Centre, Suite 2300
St. Louis, MO. 63101
1-314-231-8148
http://www.theswancorp.com

568a. Pre-built bathrooms

*Pre-Built Bathrooms*

Eggrock, LLC
265 Foster Street
Littleton, MA 01460
978-952-8800
www.eggrock.com

568b. Pre-built bathrooms

*SurePods™*

Oldcastle®
2300 Principal Row
Orlando, FL 32837
407-859-7034
https://oldcastlesurepods.com

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22 43 39 - HEALTHCARE FAUCETS

570a. Lavatory faucet

*Ligature-Resistant Metering Faucet – SF380*

Behavioral Safety Products
29A N. Main St., Suite 3
Watkinsville, GA 30677
706-705-1500
www.besafepro.com

570b. Lavatory faucet

*Suicide Prevention Patient Sink Faucet*

Norva Plastics, Inc
3911 Killam Ave.
Norfolk, VA 23508
800-826-0758
www.norvaplastics.com

570c. Lavatory faucet

*BestCare® Ligature-resistant, ADA-compliant faucet 3377 w/2 two pneumatic buttons*

Whiteall Manufacturing
P.O. Box 3527
City of Industry, CA 91744-0527
800-782-7706
www.whitehallmfg.com

570d. Lavatory faucet

*BestCare® Ligature-resistant, ADA-compliant Sensor faucet #WH3375-SO*

Whitehall Manufacturing
P.O. Box 3527
City of Industry, CA 91744-0527
800-782-7706
www.whitehallmfg.com

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574. Lavatory with countertop valve

*Lavatory Valve*
Odd Ball Industries
P.O. Box 376
Greenlawn, NY 11740
631-754-0400
www.oddballindustries.com

22 43 43 - HEALTHCARE PLUMBING FIXTURE FLUSHOMETERS

580. Recessed flush valve

*Royal 611 & WB-1-A Easy Access Wall Box*
Sloan®
10500 Seymour Avenue
Franklin Park, IL 60131
800-982-5839
www.sloan.com

581a. Recessed flush valve

*Regal 955 Hydraulic Concealed Flushometer & WB-1-A Easy Access Wall Box*
Sloan®
10500 Seymour Avenue
Franklin Park, IL 60131
800-982-5839
www.sloan.com

581b. Recessed flush valve

*CX Manual Flushometer (Recessed)*
Sloan®
10500 Seymour Avenue
Franklin Park, IL 60131
800-982-5839
www.sloan.com

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581c. Recessed flush valve

3-inch Push Button Assembly for Concealed Flush Valves – P6000-NL3
Zurn Industries
511 W. Freshwater Way
Milwaukee, WI 53204
855-663-9876
www.zurn.com

585a. Flush valve cover

HSC79 SafeCare Ligature-Resistant Flush Valve Cover
Bradley Corporation
W142N9101 Fountain Boulevard Menomonee Falls, WI 53051
800-272-3539
www.bradleycorp.com

585b. Flush valve cover

FV500 (2 piece) & FV600 (1 piece) Ligature Resistant Flush Valve Cover
Behavioral Safety Products
29A N. Main St., Suite 3
Watkinsville, GA 30677
706-705-1500
www.besafepro.com

585c. Flush valve cover

831-S39 SR™ Flush Valve Cover
Weizel Security
Unit 9 – 62 Fawcett Road
Coquitlam, BC, Canada V3K 6V5
800-308-3627
www.securinghospitals.com

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585d. Flush valve cover

*Ligature-Resistant Box with Flush Valve WH2802 – for various toilet or urinal*
Whitehall Manufacturing
P.O. Box 3527
City of Industry, CA 91744-0527
800-782-7706
[www.whitehallmfg.com](http://www.whitehallmfg.com)

588. Recessed bedpan washer

*Recessed Bedpan Washer*
Willoughby Industries
5105 West 78th Street
Indianapolis, IN 46268
800-428-4065
[www.willoughby-ind.com](http://www.willoughby-ind.com)

**22 47 00 – WATER STATION WATER COOLERS**

589a. Drinking water cup filling stations

*B103-C2-HR Water Bottle Filling Station Cup Dispenser and Disposal with security features*
Filtrine Manufacturing Company
15 Kit Street,
Keene, NH 03431
800-930-3367
[www.filtrine.com](http://www.filtrine.com)

589b. Drinking water cup filling stations

*Quench 755 Countertop Filtered Water Cooler with UV*
Quench
780 5th Avenue, Suite 200
King of Prussia, PA 19406
888-877-0561
[www.quenchonline.com](http://www.quenchonline.com)

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589c. Drinking water cup filling stations

*Pushbutton Ligature-Resistant Cup Filler – WHBF3*
Whitehall Manufacturing
P.O. Box 3527
City of Industry, CA 91744-0527
800-782-7706
www.whitehallmfg.com

**22 60 00 – GAS AND VACUUM SYSTEMS FOR HEALTHCARE FACILITIES**

590a. Medical gas covers

*Security Patient Console*
Hospital Systems, Inc.
750 Garcia Avenue
Pittsburg, CA 94565
925-427-7800
www.hsiheadwalls.com

590b. Medical gas covers

*Recessed Security Console*
Modular Services Company
500 East Britton Road
Oklahoma City, OK 73114
800-687-0938
www.modularservices.com/products-services/products-type/secure

590c. Medical gas covers

*Security Headwalls w/ 3/8” polycarbonate locked cover bottom hinge*
Modular Services Company
500 East Britton Road
Oklahoma City, OK 73114
800-687-0938
www.modularservices.com
www.filtrine.com

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23 00 00 - HEATING, VENTILATING AND AIR CONDITIONING

23 37 13 - DIFFUSERS, Registers and Grilles

600a. Air grille - “S” vane

**Security Grille – “S” vane # RSPA41**
Carnes® Company
448 South Main Street
Verona, WI 53593
608-845-6411
www.carnes.com

600c. Air grille - “S” vane

**V-Vent High Security Grille #814-R17 SR™**
Weizel Security
800-308-3627
www.securinghospitals.com

600d. Air grille - “S” vane

**Maximum Security Ceiling Diffuser # SSV432**
Anemostat® Air Distribution
1220 Watson Center Road
Carson, CA. 90745
310-835-7500
www.anemostat.com

602a. Air grille – max security

**Extra Heavy Duty Grille with Removable Steel Perforated Face Plate # RRMX**
Anemostat® Air Distribution
1220 Watson Center Road
Carson, CA. 90745
310-835-7500
www.anemostat.com

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602b. Air grille – max security

*Maximum Security Suicide Deterrent Grille, steel with 3/16-inch holes # SG-SD*

Titus
605 Shiloh Road
Plano, TX 75074
972-212-4800
www.titus-hvac.com

603a. Air grilles - Perforated

*Security Grille – Perforated # RSPA51*

Carnes® Company
448 South Main Street
Verona, WI 53593
608-845-6411
www.carnes.com

603b. Air grilles - Perforated

*Security Grille – supply or return # SEG-4P3*

Kees Incorporated
400 S. Industrial Drive, PO Box 327
Elkhart Lake, WI 53020-0327
920-876-3391
www.kees.com

606. Fan coil enclosures

*Fan Coil Covers - Security*

ARSCO Manufacturing Company
5313 Robert Avenue
Cincinnati, OH 45248
800-543-7040
www.arscomfg.com

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607a. Room Temperature Sensor – tamper-resistant

*Flush-Mount Thermistor; KTP Series Stainless Steel*
Kele, Inc.
3300 Brother Blvd.
Bartlett, TN 38133
877-826-9045
www.kele.com

607b. Room Temperature Sensor – tamper-resistant

*Flush-Mount Room Temperature Sensor #540-520*
Siemens Building Technologies, Inc.
1000 Deerfield Parkway
Buffalo Grove, IL 60089
www.siemens.com

26 00 00 - ELECTRICAL
26 27 26 – ELECTRICAL DEVICES

610a. Hospital-grade receptacles

*Hospital Grade Tamper-Resistant GFCI Receptacles*
Hubbell Incorporated
Wiring Device-Kellems
40 Waterview Drive
Shelton, CT 06484
800-288-6000
www.hubbell-wiring.com

610b. Hospital-grade receptacles

*Hospital Grade Tamper-Resistant GFCI Receptacles*
Cooper Industries
PO Box 4446
Houston, TX 77210-4446
713-209-8400
www.cooperindustries.com

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611a. Key-operated electric switches
   *Pass & Seymour Locking Keyed Switch*
   Legrand North America, LLC
   http://www.legrand.us/passandseymour.aspx

611b. Key-operated electric switches
   *Leviton 1221-2KL Key Locking Extra Heavy Duty Switch*
   Leviton Manufacturing Co., Inc.
   www.leviton.com

612c. Polycarbonate electrical coverplates
   *Tiger Plates*
   Cortech® USA
   7530 Plaza Court
   Willowbrook, IL 60527
   800-571-0700
   www.cortechusa.com

26 51 00 – INTERIOR LIGHTING
620a. Light fixture
   *NASL-RND LED 2’ diameter w/ flat polycarbonate lens and tamper resistant screws*
   Day-O-Lite
   126 Chestnut Street
   Warwick, RI 02888
   401-467-8232
   www.dayolite.com

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620b. Individual reading light  
*Symmetry tamper-resistant light fixture*  
Visa Lighting  
1717 W. Civic Drive  
Milwaukee, WI 53209  
800-788-8472  
[www.visalighting.com](http://www.visalighting.com)

620c. Light fixture  
*Fino® ceiling mount and wall mount light fixtures*  
Amerlux®, LLC  
178 Bauer Drive  
Oakland, NJ 07436  
973-882-5010  
[www.amerlux.com](http://www.amerlux.com)

620d. Light fixture  
*Mighty Mac TW Series TUNABLE Color SSA Slope Sided Surface Mount or RMCD Recessed Mount vandal resistant light fixtures*  
Kenall®  
10200 55th Street  
Kenosha, WI 53144  
800-453-6255  
[www.kenall.com](http://www.kenall.com)

620e. Light fixture  
*Fail-Safe SGI recessed, sealed, and gasketed with polycarbonate lens*  
Eaton’s Cooper Lighting  
1121 Highway 74 South  
Peachtree City, GA 30269  
770-486-4800  
[www.cooperindustries.com](http://www.cooperindustries.com)

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620f. Light fixture
818-R13 SR™ Recessed Ceiling Lighting with polycarbonate lens
Weizel Security
800-308-3627
www.securinghospitals.com

620g. Light fixture
Mighty Mac WCBU Two-Aperture Bull Nose series
Kenall®
10200 55th Street
Kenosha, WI 53144
800-453-6255
www.kenall.com

620h. Light fixture
Ligature and Vandal-Resistant 6” LED downlight #MRV-06858
Kirlin Company
3401 E. Jefferson Avenue
Detroit, MI 48207
313-259-6400
www.kirlinlighting.com

620j. Light fixture
Sonar 12 SPC12 Vandal Resistant wall mount fixture
Luminaire Lighting Corporation
5 Sutton Place
P. O. Box 2162
Edison, NJ 08818
732-549-0056
www.luminairelighting.com

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620k. Light fixture

**Shat-R-Shield - Ironclad VR Pro surface mounted vandal-resistant fixture #494F12**
Grainger
100 Grainger Parkway
Lake Forest, IL 60045
800-472-4643
www.grainger.com

620l. Light fixture

**Vandal Resistant round wall/ceiling mount fixture Anyx-13, ARV-13**
Luminaire Lighting Corporation
5 Sutton Place
P. O. Box 2162
Edison, NJ 08818
732-549-0056
www.luminairelighting.com

620m. Light fixture

**CRN Series with clear polycarbonate external lens and TP door fasteners**
The L.C. Doane Company
P.O. Box 700
Ivoryton, CT. 06442
860-767-8295
www.lcdoane.com

620n. Light fixture

**Fail-Safe FW WaveStream Wall LED Luminaire**
Eaton Lighting
770-486-4800
www.eaton.com/lighting

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624. Individual reading light

*Visa Lighting; Gig with BH1 mounting bracket & polycarbonate lens*

Visa Lighting
1717 W. Civic Drive
Milwaukee, WI 53209
800-788-8472
[www.visalighting.com](http://www.visalighting.com)

630. Downlight cover

*Recesso Lights*

Recesso Lighting by Dolan Designs
13501 100th Avenue NE, #524
Kirkland, WA 98034
877-357-6127
[http://recessolighting.com](http://recessolighting.com)

637. Exterior lighting

*Exterior Vandal Resistant Lighting*

The Kirlin Company
3401 East Jefferson Avenue
Detroit, MI 48207
313-259-6400
[www.kirlinlighting.com](http://www.kirlinlighting.com)

639. Night-light

*CM-25500 PathMaster Die Cast Mini LED Step Light*

Philips Lighting North America Corporation (Chloride)
200 Franklin Square Drive
Somerset, NJ 08873
855-486-2216
[www.lightingproducts.philips.com](http://www.lightingproducts.philips.com)

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26 53 00 – EXIT SIGNS

640a. Exit signs, LED – vandal-resistant

*Commercial Exit Signs SC Series – Cast Aluminum LED with vandal-resistant lens and tamperproof hardware*

Philips Lighting North America Corporation (Chloride)
200 Franklin Square Drive
Somerset, NJ 08873
855-486-2216
www.lightingproducts.philips.com

640b. Exit signs, lighted – vandal-resistant

*Mighty Mac MMEX Surface, Wall, or Ceiling Mount Single/Double Face Exit w/ full-length mounting canopy*

Kenall®
10200 55th Street
Kenosha, WI 53144
800-453-6255
www.kenall.com

642. Exit signs - photoluminescent

*EX424246-100G Ecoglo® Photoluminescent Exit Sign*

Access Products Inc.
241 Main Street, Suite 100
Buffalo, NY 14203
888-679-4022
www.us.ecoglo.com

26 55 53 – SECURITY LIGHTING

643. Covers

*Norva Plastics – Life/Fire Safety Lexan Covers*

Norva Plastics, Inc
3911 Killam Ave.
Norfolk, VA 23508
800-826-0758
www.norvaplastics.com

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27 00 00 - COMMUNICATIONS

27 32 13 - TELEPHONE SETS

645a. Stainless steel wall phones

**GB306V-14 Vandal-Resistant Telephone with 14” armored cord**

Allen Tel Products, Inc.
30 TVS Drive
Henderson, NV 89014
702-855-5700
www.allentel.com

645b. Stainless steel wall phones

**SSW-321-X Ceeco Stainless Steel Wall Phone**

TWAComm.com
8700 Warner Avenue, Suite 120
Fountain Valley, CA 92708
877-389-0000
www.twacomm.com

645c. Stainless steel wall phones

**JP3500 Armored Courtesy Phone**

G-Tel Enterprises, Inc.
16840 Clay Road, #118
Houston, TX 77084
800-884-4835
www.payphone.com

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27 52 23 – NURSE CALL/CODE BLUE SYSTEMS

650a. Wireless duress alarm

**INSTANtalarm® 5000**
Pinpoint®, Inc.
2100 Southbridge Parkway, Suite 650
Birmingham, AL 35209
205-414-7541
www.pinpointinc.com

650b. Wireless Duress Alarm

**Staff Alarm System #SA750**
Behavioral Safety Products
29A N. Main St., Suite 3
Watkinsville, GA 30677
706-705-1500
www.besafepro.com

650f. Wireless duress alarm

**B3000n Communication Badge**
Vocera®
525 Race Street
San Jose, CA 95126
888-986-2372
www.vocera.com

653. Nurse call system – vandal-resistant

**HSS401 Responder Health Care Communications System High Security Staff Duty Station**
Rauland-Borg Corporation
1802 West Central Road
Mount Prospect, IL 60056
800-752-7725
www.rauland.com

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654. Pushbutton switch – vandal-resistant

**PV1-PV8 Anti-Vandal Switches**
Lamb Industries
7153 Northland Drive
Minneapolis, MN 55428
800-867-2717
http://www.e-switch.com/

28 00 00 – ELECTRONIC SAFETY AND SECURITY

28 40 00 – ELECTRONIC MONITORING AND CONTROL

660. Metal Detectors

**Metrasens; Proscreen 200**
Metrasens
2150 Western Court, Suite 360
Lisle, IL 60532
630-541-6509
http://www.metrasens.com/

32 00 00 – EXTERIOR IMPROVEMENTS

32 31 13 - SECURITY FENCING

675a. Security fencing

**Mini-Mesh chain-link fencing**
Fence Factory
29149 Agoura Road
Agoura Hills, CA 91301
800-613-3623
www.fencefactory.com

675b. Security fencing

**WireWall® High Security Fencing - Maximum Security**
Riverdale Mills Corporation
130 Riverdale Street; PO Box 920
Northbridge, MA 01534
800-762-6374
www.riverdale.com

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675c. Security fencing

**Steel fence systems**
METALCO Fence & Railing Systems, Inc.
3050 Sirius Ave, Suite 104
Las Vegas, NV 89102
800-708-2526
fence-system.com

675d. Security fencing

**Fortress Fencing**
Britplas
18 Kingsland Grange
Woolston
Warrington, Cheshire, England WA1 4RW
+44(01)-1925-824317
www.britplas.com

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ABOUT THE AUTHORS

James M. Hunt, AIA, is a practicing architect and facility management professional with more than 40 years of experience. He is a registered architect and began his career practicing architecture for several major health care projects. He then served as director of facility management for the Menninger Clinic for 20 years. In addition to managing the clinic’s main campus, he consulted on behavioral health care unit remodeling projects for their Clinical Network program in eight states. During this time, Mr. Hunt was a founding member of the Health Care Council of the International Facility Management Association. He held several offices in the council, including chair. He publishes articles and speaks at major conferences frequently. He is founder and Senior Consultant of Behavioral Health Facility Consulting, LLC (BHFC), an organization that consults with behavioral health organizations and architects who design behavioral health facilities regarding their unique requirements for patient and staff safety. He has worked with behavioral health facilities in more than 30 states and Canada. He can be reached at jim@bhfcllc.com.

David M. Sine, DrBE, CSP, ARM, CPHRM, has had a career of more than 25 years in safety, risk management, human factors, and organizational consulting. He has been state safety director of two eastern states, senior staff engineer for the Joint Commission, and a senior consultant for the American Hospital Association. Founding partner and one-time contributing editor for Briefings on Hospital Safety, co-author of Quality Improvement Techniques for Hospital Safety, and one-time vice chair of the board of Brackenridge Hospital in Austin, Texas, Mr. Sine is certified by the Joint Board of the American Board of Industrial Hygiene and Certified Safety Professionals and as a Certified Professional Healthcare Risk Manager by ASHRM. He has been a health care risk management consultant since 1980 and has conducted more than 1,300 Joint Commission compliance assessment surveys. He serves as a member of the NFPA 101 Life Safety Code Subcommittee on Health Care Occupancies, the Joint Commission Committee on Healthcare Safety, and the FGI Health Guidelines Revision Committee and acts as a risk management adviser to the National Association of Psychiatric Health Systems. He served in the corporate offices of the Tenet HealthSystem in Dallas as director of risk assessment and loss prevention and vice president of occupational health and safety. Mr. Sine continues to write and lecture extensively on health care policy, governance, quality improvement, and risk management as President of SafetyLogic Systems. He can be reached at dsine9@gmail.com.

Kimberly Newton McMurray, AIA, EDAC, MBA is Principal of Behavioral Health Facility Consulting, LLC. of Tuscaloosa, Alabama. McMurray is a practicing architect and healthcare planner with 32 years of leadership experience in healthcare and academic medical campus architecture; she has been responsible for the implementation of large architectural projects located within complex medical campus sites, delivering the highest quality for each project initiative. McMurray has a decade of experience from the owner’s perspective and working with multi-disciplinary user groups, thereby embracing a unique perspective and response to client needs; applying her knowledge of clinical operations, evidence-based design, lean operational planning and conceptual design to architecture. Among McMurray’s three decades of healthcare architectural expertise, she brings a high-level of experience with behavioral health project types. During her experience on-staff architect at The University of Alabama at Birmingham (UAB) Health System Center for Psychiatric Medicine, and development of the Psychiatric Treatment Unit for the UAB Emergency Services department. She has assisted 26 behavioral health facilities since joining BHFC in 2017. She can be reached at kimberly@bhfcllc.com.

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DEFINITIONS / RESOURCES

**Americans with Disabilities Act (ADA).** The Americans with Disabilities Act gives civil rights protections to individuals with disabilities similar to those provided to individuals on the basis of race, color, sex, national origin, age, and religion. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, state and local government services, and telecommunications. See [www.ada.gov/](http://www.ada.gov/).

**Centers for Medicare & Medicaid Services (CMS).** CMS is part of the U.S. Department of Health and Human Services and is responsible for the administration of the Medicare and Medicaid programs. They are currently holding a public comment period (until June 27, 2019) on the draft of their proposed “Clarification of Ligature Risk Interpretive Guidelines”. Text of the draft is available on their website [https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Policy-and-Memos-to-States-and-Regions-Items/QSO-19-12-hospitals.html?DLPage=2&DLEntries=10&DLSort=3&DLSortDir=descending](https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Policy-and-Memos-to-States-and-Regions-Items/QSO-19-12-hospitals.html?DLPage=2&DLEntries=10&DLSort=3&DLSortDir=descending) and at [www.bhfcllc.com](http://www.bhfcllc.com) under the “Trending” tab. Updates will be posted when available.


**Health Insurance Portability and Accountability Act of 1996 (HIPAA).** The Office for Civil Rights in the U.S. Department of Health and Human Services (HHS) enforces the HIPAA Privacy Rule, which protects the privacy of individually identifiable health information; the HIPAA Security Rule, which sets national standards for the security of electronic protected health information; and the confidentiality provisions of the Patient Safety Rule, which protect identifiable information being used to analyze patient safety events and improve patient safety. See [www.hhs.gov/ocr/privacy](http://www.hhs.gov/ocr/privacy).

**The Joint Commission (TJC).** There is now FREE ACCESS to a Suicide Prevention Portal on TJC’s website at the following link: [https://www.jointcommission.org/topics/suicide_prevention_portal.aspx](https://www.jointcommission.org/topics/suicide_prevention_portal.aspx) This contains the recommendations of TJC’s Expert Panel on Suicide Prevention, related National Patient Safety Goals discussion regarding tools for evaluating the suicidal intention of patients. This is kept updated with the latest information and is available to all without a subscription fee.


**National Institute of Corrections.** See [www.nicic.gov](http://www.nicic.gov).

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LIST OF MANUFACTURERS

Access Products, www.us.ecoglo.com
Accurate, www.accuratelockandhardware.com
Acorn Engineering Co., www.acorneng.com
Allen Tel Products, www.allentel.com
Alro Plastics, www.alro.com
American Innovation, www.americaninnovationproducts.com
American Specialties, www.americanspecialties.com
Anemostat, www.anemostat-hvac.com
Archer Manufacturing, www.vandalproof.org
Armstrong Ceiling Solutions, www.armstrongceilings.com
Armstrong Flooring, www.armstrong.com
Arasco, www.arscomfg.com
Avonite, www.avonitesurfaces.com
BASF, www.master-builders-solutions.basf.us
Bath, www.best-bath.com
Big John, www.bigjohnproduct.com
Blockhouse, www.blockhouse.com
Bradley, www.bradleycorp.com
Brey-Krause, www.breykrause.com
Britplas, www.britplas.com
Carnes, www.carnes.com
Carstens, www.carstens.com
Cascade, www.cascadesh.com
Ceco, www.cecodoor.com
CHG, www.chgbeds.com
Chloride, www.chloridesys.com/chloride
CompX, www.compx.com
Comforflex, www.comfortex.com
Cooper, www.cooperindustries.com
Cortech, www.cortechusa.com
CS Acrovyn, www.c-sgroup.com
Curries, www.curries.com
Custom Design Frameworks, www.customdesignframeworks.com
Dano Group, http://www.danogroup.com
Designplan, www.designplan.com
Dex-O-Tex, www.dexotex.com

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Luminaire, www.luminairelighting.com
Manko Windows, www.mankowindows.com
Maiman, www.maiman.com
Marathon, www.flexcofloors.com
Markar,
Marks USA, www.marksusa.com
Marshfield Door Systems, www.marshfielddoors.com
McMaster-Carr, www.mcmaster.com
Metalco, www.fence-system.com
Metrasens, www.metrasens.com
Mockett, Doug, www.mockett.com
Moduform, www.moduform.com
Modular Services Company, www.modularservices.com
National Gypsum, www.nationalgypsum.com
Nemschoff, www.nemschoff.com
Nora Systems, Inc.; www.nora.com/us
Norix, www.norix.com
Northwest Specialty Hardware. www.northwestsh.com
Norva Plastics, www.norvaplastics.com
Odd Ball, www.oddballindustries.com
O'Keeffe's, Inc., www.safti.com
Oldcastle, www.oldcastlebe.com
Pabco Gypsum, www.quietrock.com
Padded Surfaces, paddedsurfaces.com/CAD.html
Pecora, www.pecora.com
Pineapple, www.pineapplecontracts.com
Pinpoint, www.pinpointinc.com
Quench; www.quenchonline.com
Quick Drain USA, www.quickdrain.com
Rauland - Borg Corp., www.rauland.com
Re*cesso Lights, http://recessolighting.com/
Riverdale Mills, www.wirewall.com
ROA Contract Sales, www.rao.com
Rockwood, www.rockwoodmfg.com
Roppe, www.roppe.com
Sabic, www.sabic.com
SaftiFirst (O'Keeffe's, Inc.), www.safti.com
Sani-liner, www.wisconsinconverting.com

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