

**CITY OF MANISTEE
BOARD OF APPEALS**

City Hall
70 Maple Street
Manistee, MI 49660

A meeting of the City of Manistee Board of Appeals was held on Wednesday, November 18, 1998 in the Council Chambers, 70 Maple Street, Manistee, Michigan.

AGENDA

- I. Roll Call

- II. Matters Pertaining to the General Citizenry:
 - A. Hearing:
 - 1. Lighthouse Brewing Company
 - 2.
 - B. Questions, Concerns of Citizens in Attendance:
 - 1.
 - 2.

- III. Business Session:
 - A. Approval of Minutes (10/22/98 Board of Appeals)
 - B. Unfinished Business:
 - 1. Lighthouse Brewing Company
 - 2.
 - B. Other Business:
 - 1.
 - 2.

- IV. Adjournment

cc: Board of Appeals Members
Lori Donnan, Administrative Assistant
Jon R. Rose, Community Development Officer
Julie A. Beardslee, City Assessor
R. Ben Bifoss, City Manager
Bruce Gockerman, City Attorney

CITY OF MANISTEE

MEMORANDUM

TO: Board of Appeals Members

FROM: Jon R. Rose 
Community Development Officer

DATE: November 9, 1998

RE: Board of Appeals Meeting Wednesday, November 18, 1998

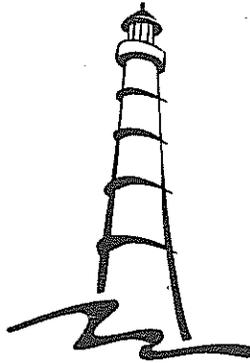
We will have a Board of Appeals meeting on Wednesday, November 18, 1998 at 5:30 p.m. in the Council Chambers. This meeting is being held in response to a request from Lighthouse Brewing Company.

Enclosed is a copy of the letter requesting a hearing, a copy of John Kiefer's letter dated October 16, 1998 and a copy of BOCA Sections 1021.2, 1014.0 and 1014.12 for your review.

If there are any questions or you are unable to attend the meeting please call me at 723-2558. See you there!

JRR:djm

Enclosures



November 6, 1998

Board of Appeals
Attn: Jon Rose
City of Manistee
70 Maple Street
Manistee, Michigan

RE: Building Permit No. 98007 and John Kiefer's letter dated October 16, 1998

Dear Chairman,

Subject: Request for Variance

The following items in the referenced letter have been corrected:

- (1) Restroom Signage
- (4) Mechanical Room
- (8) Occupancy Signage

The following items will be done this month:

- (2) Deck handrails (outside)
- (5) Verification of Safety Glass
- (9) Fire extinguisher cabinet signage

A variance is requested for the remaining three items.

- (3) Prevention of snow and ice accumulation on the back deck stairway.
Physical cleaning of the egress area will be accomplished as done in front on River Street.
- (6) Brew platform stairway.
This is a work stairway and platform built to manufacturers specifications used throughout the United States and Canada. We will by the end of this month have a safety chain across the bottom of the stairs with a sign stating "Authorized Only".
- (7) Main stairway landing rail height.
 - a. The first landing is approximately 4 feet above the floor. It was designed by Integrated Architects to meet code requirements as well as designed to meet functional, safety and aesthetic requirements. This was accomplished as shown in the attached pictures.
 - b. The second landing is enclosed within the stairwell in addition to meeting the same criteria as expressed in (7) b. above.

Sincerely,

James D. Picardat
President

LIGHTHOUSE BREWING COMPANY



c/o Nordlund & Associates, Inc., 267 River Street, Manistee, MI 49660

(616) 723-6460

October 16, 1998

Mr. Jim Picardat
Lighthouse Brewing Co.
312 River Street
Manistee, Michigan 49660

RE: Building Permit No. 98007
Parcel Code 51-51-452-704-19

Dear Jim:

The following is a summary of the results of my inspection of October 16, 1998.

Building Permit items:

- (1) Restroom signage must be installed as required at each restroom throughout the building. ✓
- (2) Handrails on stairway from the deck must have the required extension at the top and bottom. Also the ends of the handrail must return to a wall or post.
- (3) The method for providing prevention of ice and snow accumulation on the deck and stairway, for egress reasons, remains to be resolved.
- (4) The mechanical room located in the basement must have all wall and ceiling penetrations firestopped. Both doors must be self closing with automatic door closers.
- (5) Provide information to document that glass in doors and adjacent to doors meets the requirements for safety glazing. One area in particular was the door and window in the Holding Tank Room but other areas should be checked.
- (6) The stairway to the brewing platform does not meet the requirements for width, rise, run and handrails. The guard for the platform does not meet the 42" required.
- (7) The guard for the first and second landing of the main stairway does not meet the 42" height required. Openings in the triangular shaped areas of the guard do not restrict the passage of a 4" diameter sphere.
- (8) Post a permanent sign near the main entry stating the maximum occupancy of the structure.
- (9) Install signs on the fire extinguisher cabinets that are visible from the sides.

All of the items listed above must be addressed either by corrections made in the field or through the exception process with the Construction Code Board of Appeals.

Electrical Permit - Final complete October 2, 1998

Plumbing Permit - As of October 13, 1998 the final inspection had not been requested.

Mechanical Permits - Five permits were pulled for this project.

1. Custom Sheet Metal - Final complete
2. Fire Pro - Final complete
3. Kent - Final complete October 16, 1998
4. Brigada - Final complete October 16, 1998
5. Polcyn Plumbing & Heating - As of October 13, 1998 the final inspection had not been requested.

Boiler Permits - As of October 13, 1998 the Lansing Office shows that the permit for the steam boiler is open (no final). From a conversation with Dan Williams, State Boiler Inspector, as of October 13, 1998 he does not have the permits required for the hot water boilers and as such no inspections will be performed on those units.

Elevator - Final complete

Liquor Control Commission - License issued May 1, 1998

City of Manistee Fire Department - Final complete October 16, 1998

Manistee/Mason District Health Department - As of October 13, 1998 the corrections from Mr. Smith's punch list and finals on all other permits remain.

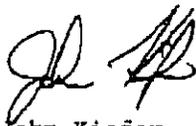
I will be in contact with Mr. Smith to keep him updated on the the status of the permits.

Lighthouse Brewing Company must contact him when appropriate to arrange the final inspection.

All work covered by the remaining permits must be complete and the final inspections requested by the Contractor who obtained the respective permit. The inspector responsible will then conduct the inspection and contact me when it is complete.

All permits MUST have final inspections performed and approved or temporary finals approved prior to my issuing any type of a Certificate of Occupancy. Items relating to the building code previously listed must also be addressed.

If you have any questions, please do not hesitate to call.



John Kiefer
Building Inspection/Plan Review

cc: Jon Rose, City of Manistee Building Official
Brad Smith, Manistee/Mason District Health Department

mm) plus 0.6 inch (15 mm) for every additional seat beyond that specified in Table 1013.5.2.

**Table 1013.5.2
ROW LENGTH WITH 12-INCH AISLE ACCESSWAY
SMOKE-PROTECTED ASSEMBLY SEATING**

Total number of seats in the space	No. of seats per row permitted to have a minimum 12-inch ^a clear width aisle accessway	
	Aisle or doorway at both ends of row	Aisle or doorway at one end of row
Less than 4,000	14	7
4,000	15	7
7,000	16	8
10,000	17	8
13,000	18	9
16,000	19	9
19,000	20	10
22,000 or more	21	11

Note a. 1 inch = 25.4 mm.

1013.5.3 Single access row: For rows of seating served by an aisle or doorway at only one end of the row in smoke-protected assembly seating, the *common path of travel* from any seat to a point where a person has a choice of two directions of egress travel shall not exceed 50 feet (15240 mm).

1013.6 Bleacher footboards: Bleacher footboards shall be provided for all rows of seats above the third row or beginning at such a point where the seatboard is more than 2 feet (610 mm) above the ground, floor surface or cross aisle below. A separate footboard is not required where the same platform is used for both seating and the footboard, provided that each level or platform is not less than 24 inches (610 mm) wide. On a horizontally projected plane, horizontal gaps between footboards and seatboards shall not exceed 1/4 inch (6 mm). Openings between footboards and seatboards which are located more than 30 inches (762 mm) above the floor or grade below shall be provided with intermediate construction such that a sphere with a diameter of 4 inches (102 mm) cannot pass through the opening.

1013.7 Spaces underneath seats: Spaces underneath grandstand seats shall be kept free of all combustible and flammable materials and shall not be occupied or used for other than exits; except that where enclosed in not less than 1-hour fire-resistance rated construction, the code official shall approve the use of such spaces for other purposes, provided that the safety of the public is not endangered.

SECTION 1014.D STAIRWAYS

1014.1 General: All stairways shall comply with the provisions of this section. Section 1014.11 shall be applicable only to interior stairways. Section 1014.12 shall be applicable only to exterior stairways.

1014.1.1 Walking surface: The maximum slope of the walking surface of treads and landings shall be one unit vertical in 48 units horizontal (1:48).

1014.2 Egress capacity: The egress capacity of stairways and doors shall be computed in accordance with Section 1009.0.

1014.3 Width: All means of egress stairways shall not be less than 44 inches (1118 mm) in width.

Exceptions

1. Stairways serving buildings of single-exit construction where permitted by Section 1010.3 shall not be less than 36 inches (914 mm) in width.
2. Spiral stairways as provided for in Section 1014.6.4.
3. Stairways serving an occupancy in Use Group R-3 shall not be less than 36 inches (914 mm) in width.
4. Stairways serving and contained within a single residential dwelling unit shall not be less than 36 inches (914 mm) in width.
5. Stairways serving buildings having a total occupant load of 50 or less shall not be less than 36 inches (914 mm) in width.
6. Where a stairway lift is installed on stairways serving occupancies in Use Group R-3 or within dwelling units in occupancies in Use Group R-2, a clear passage width not less than 20 inches (508 mm) shall be provided.

1014.3.1 Restrictions: Means of egress stairways shall not reduce in width in the direction of egress travel. Projections into a required stairway width are prohibited, except at and below handrail height where, at each handrail, the projections shall not exceed 3 1/2 inches (89 mm) into the required width.

1014.3.2 Landing width: The least dimension of landings and platforms in means of egress stairways shall not be less than the required width of the stairway, except that the landing dimension in the direction of egress travel is not required to exceed 4 feet (1219 mm) where the travel from one stair flight to the next stair flight is a straight run.

1014.4 Headroom: The minimum headroom in all parts of a stairway shall not be less than 80 inches (2032 mm) measured vertically from the tread nosing or from the floor surface of the landing or platform.

1014.5 Vertical rise: A means of egress stairway shall not have a height of vertical rise of more than 12 feet (3658 mm) between landings and intermediate platforms.

1014.6 Treads and risers: Maximum riser height shall be 7 inches (178 mm) and minimum riser height shall be 4 inches (102 mm). Minimum tread depth shall be 11 inches (279 mm), measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge.

Exceptions

1. Winders in accordance with Section 1014.6.3.
2. Spiral stairways in accordance with Section 1014.6.4.
3. Circular stairways in accordance with Section 1014.6.5.
4. Alternating tread stairways in accordance with Section 1014.6.6.
5. Stairways serving as aisles in assembly seating areas where the stairway pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area.
6. Any stairway replacing an existing stairway within a space where, because of existing construction, the pitch or slope cannot be reduced.

7. Existing *stairways*.
8. In occupancies in Use Group R-3 and within *dwelling units* in occupancies in Use Group R-2, the maximum riser height shall be 8¼ inches (210 mm) and the minimum tread depth shall be 9 inches (229 mm). A 1-inch (25 mm) nosing shall be provided on *stairways* with solid risers.
9. *Stairways* in penal facilities serving guard towers, observation stations and control rooms not more than 250 square feet (23 m²) in area shall be permitted to have risers not exceeding 8 inches (203 mm) in height and treads not less than 9 inches (229 mm) in depth.

1014.6.1 Profile: The radius of curvature at the leading edge of the tread shall not be greater than ½ inch (13 mm). Beveling of nosings shall not exceed ½ inch (13 mm). Risers shall be solid and vertical or sloped from the underside of the leading edge of the tread above at an angle not more than 30 degrees (0.52 rad) from the vertical. The leading edge of tread shall not project more than 1½ inches (38 mm) beyond the tread below.

Exception: Solid risers are not required for *stairways* serving dwelling units which are not required to be accessible or adaptable in accordance with Section 1107.4.2, provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).

1014.6.2 Dimensional uniformity: There shall not be variation exceeding ⅜ inch (5 mm) in the depth of adjacent treads or in the height of adjacent risers. The tolerance between the largest and smallest riser or between the largest and smallest tread shall not exceed ⅜ inch (10 mm) in any flight of stairs.

Exceptions

1. Where the bottom riser adjoins a sloping *public way*, walk or driveway which has an established grade and serves as a landing, a variation in the height of the bottom riser shall not exceed 3 inches (76 mm) in every 3 feet (914 mm) of *stairway* width.
2. On *stairways* serving as aisles in assembly seating, where necessitated by changes in the gradient of adjoining seating areas to maintain adequate sightlines, the maximum nonuniformity of riser heights within a flight and the nonuniformity between adjacent risers shall not apply. Where a nonuniformity exceeds ⅜ inch (5 mm) between adjacent risers, the exact location of the nonuniformity shall be indicated with a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers.

1014.6.3 Winders: Winders shall not be permitted in required *means of egress stairways* except in occupancies in Use Group R-3 and *stairways* serving a single *dwelling unit*. Such winders shall have a tread depth of not less than 9 inches (229 mm) at a point not more than 12 inches (305 mm) from the side where the tread is narrower and the minimum tread depth shall not be less than 6 inches (152 mm).

1014.6.4 Spiral stairways: Spiral *stairways* shall not be used as an element of a *means of egress* except: in occupancies in Use Group R-3: within a single *dwelling unit*, from a *mez-*

zanine area not more than 250 square feet (23.25 m²) in area which serves not more than five occupants; and in penal facilities from a guard tower, observation station or control room not more than 250 square feet (23 m²) in area. The minimum width of all spiral *stairways* shall be 26 inches (660 mm) with each tread having a 7½-inch (191 mm) minimum tread depth at 12 inches (305 mm) from the narrow edge. All treads shall be identical and the rise shall not be more than 9½ inches (241 mm). A minimum headroom of 6 feet 6 inches (1981 mm) shall be provided.

1014.6.5 Circular stairways: Circular *stairways* shall have a minimum tread depth and a maximum riser height in accordance with Section 1014.6 and the smaller radius shall not be less than twice the width of the *stairway*. The minimum tread depth measured 12 inches (305 mm) from the narrower end of the tread shall not be less than 11 inches (279 mm).

1014.6.6 Alternating tread stairways: *Alternating tread stairways* are permitted as an element of a *means of egress* in buildings from a *mezzanine* area not more than 250 square feet (23 m²) in area and which serves not more than five occupants; and in penal facilities, from a guard tower, observation station or control room not more than 250 square feet (23 m²) in area. *Alternating tread stairways* are also permitted for access to roofs as provided for in Section 1027.0.

1014.6.6.1 Handrails of alternating tread stairways: Handrails shall be provided on both sides of *alternating tread stairways* and shall conform to Section 1022.0.

1014.6.6.2 Treads of alternating tread stairways: *Alternating tread stairways* shall have a minimum projected tread of 5 inches (127 mm), a minimum tread depth of 8½ inches (216 mm), a minimum tread width of 7 inches (178 mm) and a maximum riser to the next surface of the alternating tread of 9½ inches (241 mm). The initial tread of the *stairway* shall begin at the same elevation as the platform, landing or floor surface.

Exception: *Alternating tread stairways* used as an element of a *means of egress* in buildings from a *mezzanine* area not more than 250 square feet (23 m²) in area which serves not more than five occupants shall have a minimum projected tread of 8½ inches (216 mm) with a minimum tread depth of 10½ inches (267 mm). The rise to the next alternating tread surface shall not be more than 8 inches (203 mm).

1014.7 Stairway guards and handrails: *Stairways* shall have continuous guards and handrails on both sides. Intermediate handrails are required so that all portions of the required width of stairs are within 30 inches (762 mm) of a handrail. On monumental stairs, handrails shall be located along the most direct path of egress travel. Handrails shall be provided for *alternating tread stairways* in accordance with Section 1014.6.6.1. Guards shall be constructed in accordance with Section 1021.0. Handrails shall be constructed in accordance with Section 1022.0.

Exceptions

1. *Stairways* with fewer than three risers are not required to have handrails where serving a single *dwelling unit*

of where such stairways are not in an *exit access corridor* or aisle, *exit* or *exit discharge*.

2. Aisle stairs provided with a center handrail or serving seating on one side shall be equipped with a minimum of one handrail.
3. Stairways within a *dwelling unit* shall be equipped with a minimum of one handrail.
4. Spiral stairways shall be equipped with a minimum of one handrail.

1014.8 Egress doors: *Means of egress stairway* doors shall provide an egress capacity of not less than the required capacity of the *stairway* which serves the floor or area from which the egress door leads.

1014.8.1 Width: The minimum required width of every door to or from a *means of egress stairway* shall be determined by the most restrictive of the following criteria:

1. 29³/₄-inch (756 mm) clear width within a *dwelling unit* that is not required to be accessible or adaptable.
2. 36-inch (914 mm) minimum width of door leaf in an occupancy in Use Group I-2.
3. 32-inch (813 mm) clear width in all other cases.

1014.8.2 Direction of swing: All *means of egress* doors shall swing on a landing in the direction of egress travel. When opening, egress doors shall not reduce the width of landings to less than one-half of the required width. When fully open, *means of egress* doors shall not project more than 7 inches (178 mm) into the required width.

Exception: Doors leading from a room or tenant space to a *stairway* in buildings in which only one *exit* is required are not required to swing in the direction of egress travel.

1014.8.3 Door construction: All doorway opening protectives shall be *fire doors* complying with Section 716.0. *Labeled means of egress fire doors* shall have a maximum transmitted temperature end point of not more than 450 degrees F. (232 degrees C.) above ambient at the end of 30 minutes of standard fire test exposure.

1014.9 Stairway construction: All *stairways* shall be built of materials consistent with the types of materials permitted for the type of construction of the building; except that wood handrails shall be permitted for all types of construction. Such *stairways* shall have solid treads and landing platforms, and all finish floor surfaces shall be of slip-resistant materials.

1014.9.1 Strength: All *stairways*, platforms and landings in other than occupancies in Use Group R-3 shall be adequate to support a *live load* of 100 pounds per square foot (488.20 kg/m²) and a concentrated *load* of 300 pounds (136.20 kg).

1014.10 Discharge identification: *Exit stairways* which continue beyond the *level of exit discharge* shall be interrupted at the *level of exit discharge* by partitions, doors or other effective means of preventing persons from continuing past the floor of discharge while egressing.

1014.11 Interior stairway enclosures: Interior *exit stairways* shall be enclosed with *fire separation assemblies* having a fire resistance rating of not less than 2 hours except that such *stairways* in occupancies in Use Group A, B, E, F, H-4, I, M, R or S which connect less than four stories shall be enclosed with

fire separation assemblies having a fire resistance rating of not less than 1 hour. An *exit stairway* enclosure shall not be used for any purpose other than *means of egress*. Openings in *exit* enclosures, other than unexposed exterior openings, shall be limited to those necessary for *exit access* to the enclosure from normally occupied spaces and for egress from the enclosure.

Exceptions

1. *Stairways* are not required to be enclosed in occupancies in Use Group A-5 in which all portions of the *means of egress* are essentially open to the outside.
2. *Stairways* serving and contained within a single residential *dwelling unit* in occupancies in Use Group R-2 or R-3 are not required to be enclosed.
3. *Stairways* that are not a required *means of egress* element are not required to be enclosed where such *stairways* comply with Section 713.3.
4. *Stairways* in open parking structures which serve only the parking structure are not required to be enclosed.
5. *Stairways* in occupancies in Use Group I-3 as provided for in Section 410.3.7.

1014.11.1 Exterior walls: Exterior walls of an enclosed *exit stairway* shall comply with the requirements of Section 705.0 for exterior walls. Where nonrated walls or unprotected openings enclose the exterior of the *stairway*, the building exterior walls within 10 feet (3048 mm) horizontally of the nonrated wall or unprotected opening shall be constructed as required for *stairway* enclosures, including opening protectives, but are not required to exceed a 1-hour fire resistance rating with ³/₄-hour opening protectives. This construction shall extend vertically from a point 10 feet (3048 mm) above the topmost landing of the *stairway* or to the roof line, whichever is lower, and down to the ground.

1014.11.2 Penetrations: Penetrations into and openings through an *exit* enclosure assembly are prohibited except for required *exit* doors, ductwork and equipment necessary for independent stair pressurization, required *ventilation*, *sprinkler* piping, *standpipes* and electrical conduit serving the *stairway* and terminating at a steel box that does not exceed 16 square inches (10323 mm²) in area. There shall not be any penetrations or communicating openings, whether protected or not, between adjacent *stairway* enclosures.

1014.11.3 Door locks: All interior *stairway means of egress* doors shall be openable from both sides without the use of a key or special knowledge or effort.

Exceptions

1. *Stairway* discharge doors shall be openable from the egress side and shall only be locked from the opposite side.
2. This section shall not apply to doors arranged in accordance with Sections 403.10 and 1017.4.

1014.11.4 Exit signs: Each door to an enclosed *exit stairway* shall be equipped with tactile signage reading "Exit" complying with CABO A117.1 listed in Chapter 35 and installed on the side of the door from which egress is to be made.

1014.11.5 Stairway floor number signs: A sign shall be provided at each floor landing in all interior *exit stairways*

connecting more than three stories designating the floor level above and below the *level of exit discharge*, the identification of the *stairway* and the availability of roof access from that *stairway*. The sign shall be located approximately 5 feet (1524 mm) above the floor landing in a position which is readily visible when the doors are in the open and closed positions.

1014.12 Exterior stairways: Exterior *stairways* shall have openings on at least one side facing an *outer court*, yard or *public way*. The openings shall have an aggregate width of not less than 20 percent of the *stairway* perimeter and an aggregate area on each level of not less than 12 percent of the total perimeter wall area of each level. In other than occupancies in Use Group R-3, treads, platforms and landings which are part of exterior *stairways* in climates subject to snow or ice shall be protected to prevent accumulation of same. Exterior *stairways* shall not be accepted as an *exit* in the following cases:

1. Occupancies in Use Groups I-2 and I-3 in buildings that exceed four stories or 50 feet (15240 mm) in *height*.
2. Floors that exceed five stories or 65 feet (19812 mm) in height above the *level of exit discharge*.

1014.12.1 Location: Exterior *exit stairways* shall not project beyond the *street lot line*. Exterior *exit stairways* shall be located at least 10 feet (3048 mm) from adjacent *lot lines* and from other buildings on the same *lot* unless openings in such buildings are protected by $\frac{3}{4}$ -hour opening protectives.

Exception: Noncombustible exterior *stairways* constituting not more than 50 percent of the required *means of egress* shall be exempt from the 10-foot (3048 mm) *fire separation distance* requirement.

1014.12.2 Protection: Exterior *exit stairs* shall be separated from the interior of the building by walls with a fire-resistance rating of not less than 1 hour, with fixed or self-closing opening protectives as required in Section 1014.11. This protection shall extend vertically from a point 10 feet (3048 mm) above the topmost landing or the roof line, whichever is lower, down to the ground, and shall extend horizontally 10 feet (3048 mm) from each side of the *stairway*. Openings within the horizontal 10-foot (3048 mm) extension of the protected walls beyond the *stairway* shall be equipped with fixed $\frac{3}{4}$ -hour opening protective assemblies.

Exceptions

1. Occupancies, other than those in Use Group R-1 or R-2, in buildings that are two *stories* or less *above grade* where the *level of exit discharge* is the first *story above grade*.
2. Separation from the interior of the building is not required where the exterior *stairway* is served by an exterior *exit access balcony* that connects two remote exterior *stairways* or other approved *exits*, with a perimeter which is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the openings not less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the interior of the building is not required for an exterior *stairway* located in a building or structure that is permitted to have unenclosed

interior *exit stairways* in accordance with Section 1014.11.

SECTION 1015.0 SMOKEPROOF ENCLOSURES

1015.1 General: A *smokeproof enclosure* shall consist of an enclosed interior *exit stairway* that conforms to Section 1014.0 and an outside balcony or a *ventilated* vestibule meeting the requirements of this section. Where access to the roof is required by Section 1027.0, such access shall be from the *smokeproof enclosure* where a *smokeproof enclosure* is required.

1015.2 Where required: All *exit stairways* serving occupants of a floor level located more than 75 feet (22860 mm) above the *level of exit discharge*, or located more than 30 feet (9144 mm) below the *level of exit discharge* serving such floor levels, shall be protected by a *smokeproof enclosure*.

Exception: Occupancies in Use Group I-2.

1015.3 Access: Access to the stair shall be from every story and shall be by way of a vestibule or by way of an open exterior balcony, except that a vestibule or balcony is not required for a *smokeproof enclosure* that consists of a pressurized *stairway* complying with Section 1015.7. The minimum dimension of the vestibule shall not be less than the required width of the *corridor* leading to the vestibule but shall not have a width of less than 44 inches (1118 mm) and shall not have a length of less than 72 inches (1829 mm) in the direction of egress travel.

1015.4 Construction: The *smokeproof enclosure* shall be separated from the remainder of the building by not less than a 2-hour fire-resistance rated *fire separation assembly* without openings other than the required *means of egress* doors. The vestibule shall be separated from the *stairway* by not less than a 2-hour fire-resistance rated *fire separation assembly*. The open exterior balcony shall be constructed in accordance with the fire-resistance rating requirements for floor construction.

1015.4.1 Door closers: All doors in a *smokeproof enclosure* shall be self-closing or shall be automatic-closing by actuation of a smoke detector installed at the floor side entrance to the *smokeproof enclosure* in accordance with Section 716.5. The actuation of the smoke detector on any door shall activate the closing devices on all doors in the *smokeproof enclosure* at all levels. Smoke detectors shall be installed in accordance with Section 918.8.

1015.5 Natural ventilation alternative: The provisions of Sections 1015.5.1 through 1015.5.3 shall apply to *ventilation of smokeproof enclosures* by natural means.

1015.5.1 Balcony doors: Where access to the *stairway* is by way of an open exterior balcony, the door assembly into the enclosure shall be a *fire door* in accordance with Section 716.0.

1015.5.2 Vestibule doors: Where access to the *stairway* is by way of a vestibule, the door assembly into the vestibule shall be a *fire door* complying with Section 716.0. The door assembly from the vestibule to the *stairway* shall have not less than a 20-minute fire protection rating complying with Section 716.0.

SECTION 1021.0 GUARDS

1021.1 General: Where required by the provisions of Sections 406.5, 408.3.2, 1005.5, 1014.7, 1016.5 and 1825.5, guards shall be designed and constructed in accordance with the requirements of this section and Section 1615.8. A guardrail system is a system of building components located near the open sides of elevated walking surfaces for the purpose of minimizing the possibility of an accidental fall from the walking surface to the lower level.

1021.2 Height: The guards shall be at least 42 inches (1067 mm) in height measured vertically above the leading edge of the tread or adjacent walking surface.

Exceptions

1. In other than occupancies in Use Group E, guards shall not be less than 34 inches (864 mm) in height above the leading edge of the tread along stairs which are not more than 20 feet (6096 mm) in height or which reverse direction at an intermediate landing with 12 inches (305 mm) or less measured horizontally between successive flights.
2. Guards along open-sided floor areas, *mezzanines* and landings in occupancies in Use Group R-3 shall not be less than 36 inches (914 mm) in height.

1021.3 Opening limitations: In occupancies in Use Groups A, B, E, H-4, I-1, I-2, M and R, and in *public garages* and open parking structures, open guards shall have balusters or be of solid material such that a sphere with a diameter of 4 inches (102 mm) cannot pass through any opening. Guards shall not have an ornamental pattern that would provide a ladder effect.

Exception: The triangular openings formed by the riser, tread and bottom rail at the open side of a *stairway* shall be of a maximum size such that a sphere 6 inches (152 mm) in diameter cannot pass through the opening.

In occupancies in Use Groups I-3, F, H-1, H-2, H-3 and S, other than *public garages* and open parking structures, balusters, horizontal intermediate rails or other construction shall not permit a sphere with a diameter of 21 inches (533 mm) to pass through any opening.

1021.4 Railings: Metal or other approved noncombustible railings shall be provided on balconies and galleries as prescribed in Sections 1021.4.1 through 1021.4.3.

1021.4.1 At fascia: Railings shall be provided at the fascia of boxes, balconies and galleries and shall not be less than 26 inches (660 mm) in height at the end of aisles extending to the fascia for the full width of the aisle and shall not be less than 36 inches (914 mm) in height and at the foot of steps for the full width of the steps and shall not be less than 42 inches (1067 mm) in height.

1021.4.2 At cross aisles: Railings shall be provided along cross aisles, and shall not be less than 26 inches (660 mm) in height except that railings are not required where the backs of the seats along the front of the aisles project 24 inches (610 mm) or more above the floor of the aisle.

1021.4.3 Successive tiers: Where seatings are arranged in successive tiers, and where the height of rise between plat-

forms exceeds 18 inches (457 mm), railings not less than 26 inches (660 mm) in height shall be provided along the entire row of seats at the edge of the platform.

SECTION 1022.0 HANDRAILS

1022.1 General: Where required by the provisions of Sections 1012.5, 1013.0, 1014.6.6.1, 1014.7 and 1016.5, handrails shall be designed and constructed in accordance with this section and Section 1615.8. A handrail is a horizontal or sloping rail grasped by hand for guidance or support, and for arresting falls on the adjacent walking surface.

1022.2 Handrail details: Handrail-gripping surfaces shall be continuous, without interruption by newel posts, other structure elements or obstructions. A handrail and any wall or other surface adjacent to the handrail shall be free of any sharp or abrasive elements. The clear space between the handrail and the adjacent wall or surface shall not be less than 1½ inches (38 mm). Edges shall have a minimum radius of ⅛ inch (3 mm).

1022.2.1 Projection: Handrails shall not project more than 3½ inches (89 mm) into the required passageway, aisle, *corridor*, stair or ramp width.

1022.2.2 Height: Handrails shall not be less than 34 inches (864 mm) nor more than 38 inches (965 mm), measured vertically, above the leading edge of the treads or above the finished floor of the landing or walking surfaces.

Exceptions

1. Handrails that form part of a guard shall have a height not less than 34 inches (864 mm) and not more than 42 inches (1067 mm).
2. Handrails within individual *dwelling units* shall not be less than 30 inches (762 mm) nor more than 38 inches (965 mm), measured vertically, above the leading edge of the treads or above the finished floor.

1022.2.3 Handrails in guards: Handrails that form part of a guard shall comply with Section 1021.3.

1022.2.4 Handrail ends: At locations where handrails are not continuous between *stairway* flights, including the top and bottom of a *stairway*, the handrails shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. The handrail ends shall be returned to a wall or post.

Where handrails are not continuous between ramp segments, including the top and bottom of a ramp, the handrails shall extend at least 12 inches (305 mm) beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface. The handrail ends shall be returned to a wall or post.

Exception: Within a *dwelling unit*, the horizontal extension beyond the top riser of the *stairway* flight or top of the ramp segment, and the extension beyond the bottom riser of the *stairway* flight or bottom of the ramp segment, is not required.

1022.2.5 Handrail grip size: All *stairway* handrails shall have a circular cross section with an outside diameter of at least 1¼ inches (32 mm) and not greater than 2 inches (51 mm).