

**CITY OF MANISTEE
BOARD OF APPEALS**

City Hall
70 Maple Street
Manistee, MI 49660

There will be a meeting of the City of Manistee Board of Appeals to be held on Thursday, August 13, 1998 in the Council Chambers, 70 Maple Street, Manistee, Michigan.

AGENDA

- I. Roll Call

- II. Matters Pertaining to the General Citizenry:
 - A. Hearing:
 - 1. Dr. Brad Powers
 - 2.
 - B. Questions, Concerns of Citizens in Attendance:
 - 1.
 - 2.

- III. Business Session:
 - A. Unfinished Business:
 - 1. Dr. Brad Powers
 - 2.
 - C. 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: August 7, 1998

RE: Board of Appeals Meeting Thursday, August 13, 1998

We have scheduled a Construction Board of Appeals Meeting on Thursday, August 13, 1998 which will proceed the 5:30 p.m. Zoning Board of Appeals meeting in the Council Chambers.

The Construction Board of Appeals Meeting is being held in response to a request from Dr. Brad Powers. Dr. Powers is constructing a new resident/office building. The residence is at 331 Ninth Street and the Office will be at 902 Cypress Street. The office is located in the walk in basement of the building. Dr. Powers is requesting a variance to the requirements of Section 1014.6.3 (winders) and Section 1204.1.1 (ceiling height) of the BOCA Nation Building Code/1993 Commentary. Copies of the pertaining section of the Building Code is enclosed along with a copy of Dr. Powers Letter.

If you are unable to make the meeting please call Denise at 723-2558. See you there!

JRR:djm

Enclosures

AUG 06 1998

Dr. Brad Powers, D.C.
P.O. Box 23
Manistee, MI 49660
(616) 723-0083
8/6/98

Mr. Jon Rose, Manistee City Community Development Officer
City Hall
Manistee, Mi. 49660

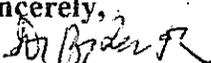
Dear Mr. Rose,

I respectfully request that you include an agenda item for the next meeting of the Construction Code Board of Appeals regarding construction of a new home/office at 331 Ninth St. and 902 Cypress St. in Manistee. I will request that specific variances be granted regarding overhead space in areas of the office and for stairs leading from the office to my mother's home above it.

Enclosed is a blueprint/sketch of the areas that do not meet the 7ft.6in. overhead requirements due to heating ducts and plumbing intrusions.

If you have any questions re: this issue, do not hesitate to call me.

Sincerely,


Dr. Brad Powers, D.C.

THE BOCA NATIONAL BUILDING CODE/1993 COMMENTARY

ments of a building or structure. By requiring sufficient clarity and details on the construction documents, the code official can readily review and approve these requirements during the permit application process (refer to Section 107.5 for further details).

1203.1 General: Construction documents for all buildings and structures that are designed for human occupancy, other than buildings with occupancies in Use Groups I-1, R-2 and R-3, shall designate the number of occupants to be accommodated in the various rooms and spaces. Where means of artificial lighting and ventilation are required, the application shall include sufficient details and description of the mechanical system to be installed as herein required or as specified in the mechanical code listed in Chapter 15.

■ The designer of the building or structure is required to indicate the number of occupants in each space or room for all use groups, excluding Use Groups R-2, R-3 and I-1. Use Groups R-2, R-3 and I-1 are excluded because the mechanical ventilation and mechanically supplied outside air required for each room are not a function of the occupant load.

For use groups other than R-2, R-3 and I-1, the designer is required to indicate an actual occupant load that falls within the minimum and maximum occupant load parameters set forth in Chapter 10. As can be seen in a review of Chapter 16 of the *BOCA National Mechanical Code*, the required mechanically supplied ventilation air is often a function of the occupant load; therefore, determination of code compliance requires this occupant load to be determined.

Additionally, if the design includes artificial lighting or mechanical ventilation, the designer is required to include sufficient details of those systems so as to show compliance with the code and the *BOCA National Mechanical Code*. The choice between natural and mechanical systems, or a combination thereof, is purely that of the designers. The designer is obligated to indicate clearly this decision and those features, devices and equipment ensuring compliance with the applicable code sections. This includes air supply and exhaust rates, distribution equipment and materials, installation instructions and descriptions, and any other information necessary to determine compliance of the particular system (this could include specific uses of space or equipment to be served).

SECTION 1204.0 ROOM DIMENSIONS

■ In an effort to satisfy both the physiological and psychological needs of the occupants, this section places restrictions on room dimensions in some use groups. There are differences between the minimums for habitable spaces and occupiable spaces (see Section 1202.0 for the definitions of occupiable and habitable spaces). These differences reflect the psychological impact that space and perception have on people when "at home" and the tolerances of space while "at work" or "at play."

1204.1 Ceiling heights: Habitable (spaces) rooms other than kitchens shall have a ceiling height of not less than 7 feet 6 inches (2286 mm). Hallways, corridors, bathrooms, toilet rooms, kitchens, laundry rooms and habitable basements that are only used as recreation rooms shall have a ceiling height of not less

than 7 feet (2134 mm) measured to the lowest projection from the ceiling.

Exception: In occupancies in Use Group R-3, the maximum projection below the required ceiling height of beams and girders spaced not less than 4 feet (1219 mm) on center shall be 6 inches (152 mm).

■ Spaces (or rooms) used for living, sleeping, eating or cooking are required to have a specific minimum ceiling height. Some accessory areas such as hallways or kitchens are excluded from the definition of habitable space, but those spaces are also required to have a minimum ceiling height. Ceiling height is one of the variables that affects the circulation of air in a space. Additionally, there is a psychological need for spaciousness in a living space or in one of the accessory spaces. There is an exception for the aesthetically pleasing features, such as exposed beams or girders, if such features are placed at substantially large intervals so as not to disrupt the light and ventilation of the space. Figure 1204.1(1) illustrates this requirement.

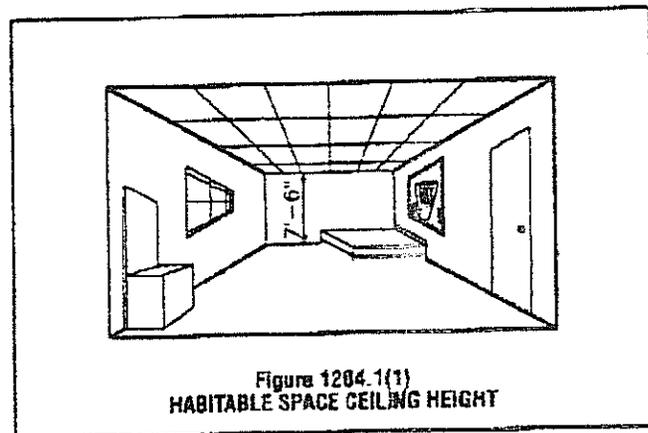
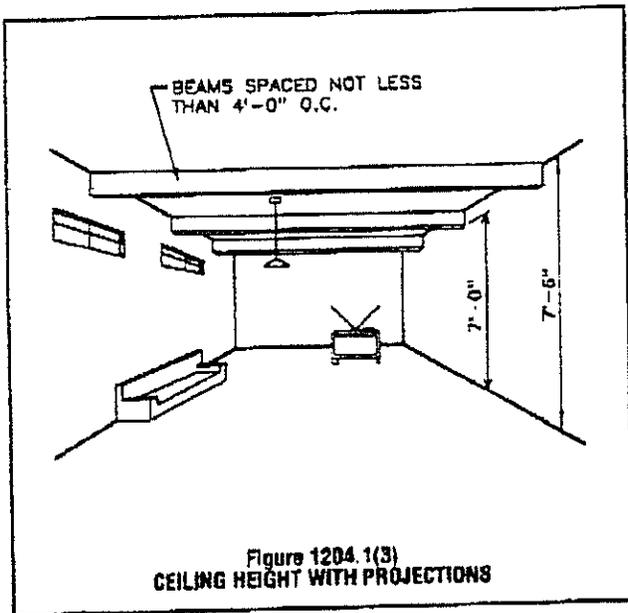
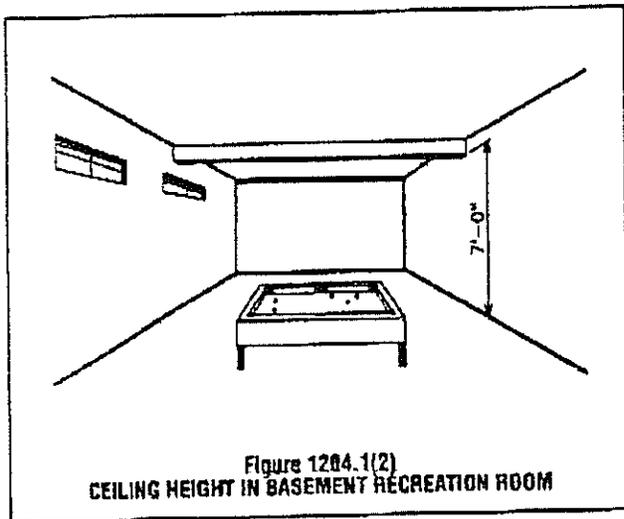


Figure 1204.1(2) illustrates a solution to the requirement that habitable basements used only as a recreation room, hallways, corridors, bathrooms, toilet rooms, laundry rooms and kitchens shall have a ceiling height of not less than 7 feet, measured to the lowest projection (i.e., beams, girders, duct work, plumbing and electrical systems, etc.). The code allows a reduction in ceiling height for these spaces since they are occupied for limited periods of time and are actual "living" areas. The requirement for a healthful, open interior environment is not as great for these limited areas and thus a ceiling reduction height is granted.

Figure 1204.1(3) illustrates a solution to the requirement that habitable spaces in Use Group R-3 may have only beams and girders spaced not less than 4 feet on center, projecting 6 inches below the minimum required ceiling height of 7 feet 6 inches in accordance with the exception. The exception is only applicable to the 7-foot, 6-inch ceiling height requirement for habitable spaces and rooms. The 7-foot ceiling height for hallways, corridors, etc., cannot be reduced any further for exposed beam or duct work. Additionally, light fixtures hung from the ceiling, including ceiling fans, are considered furniture and, therefore, are not prohibited. The purpose of this exception is to grant ceiling height relief for single-family dwellings which contain limited occupant loads with limited needs for large open rooms. This exception allows decorative exposed beams and box-outs

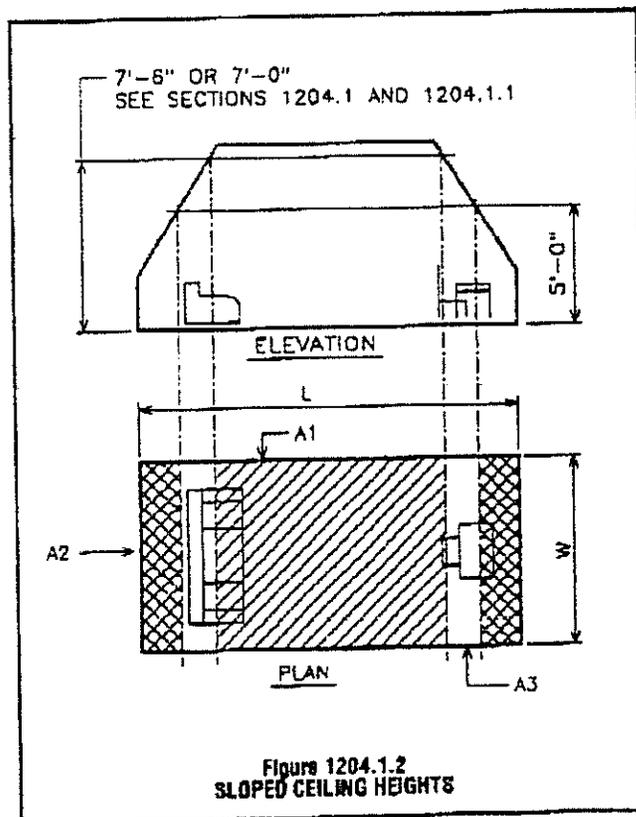
INTERIOR ENVIRONMENT

for duct work to protrude below the rest of the ceiling surfaces. By limiting the spacings of such elements to a 4-foot minimum, the means of egress and the healthful, open interior environment for the Use Group R-3 occupants are minimally affected.



1204.1.2 Sloping ceilings: If any room in a building has a sloping ceiling, the prescribed ceiling height for the room is required in one-half the area thereof. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the finished ceiling shall not be included in any computation of the minimum area thereof.

■ The plan and elevation shown in Figure 1204.1.2 represent the ceiling height requirements. Floor area A-1 shall be greater than or equal to one-half the length times the width. Floor areas A-2 and A-3 shall not be included in the minimum floor area computations required in Section 1204.2 or as required by the *BOCA National Property Maintenance Code*. Only the least dimension area A-1 shall be used to determine compliance with Section 1204.3 or the *BOCA National Property Maintenance Code*. Areas A-2 and A-3 shall be included in all other regulated floor area calculations (i.e., mezzanines and occupant loads).



1204.1.3 Furred ceilings: If any room has a furred ceiling, the prescribed ceiling height is required in two-thirds of the area thereof, but the height of the furred ceiling shall not be less than 7 feet (2134 mm).

■ To allow adequate air circulation and alleviate psychological difficulties, the ceiling heights in Use Groups A, B, E and M are required to have a ceiling height of 7 feet 6 inches. Additionally, in a fire emergency, the ceiling height is a factor in allowing the occupants to egress below the products of combustion that will bank along the ceiling.

■ This section only applies to rooms required to have a ceiling height of not less than 7 feet 6 inches (2286 mm). In Figure 1204.1.3, floor area A-1 shall be greater than or equal to 2/3 (length x width). Note that only those ceiling heights furred to a height of less than 7 feet 6 inches affect area A-1.

MEANS OF EGRESS

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 $\frac{3}{16}$ 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.

■ Dimensional uniformity in the design and construction of interior stairways contributes to safe stairway use. In ascending or especially when descending a stair, a user sets a natural cadence or rhythmic movement based on the unconscious expectation or "feel" that each step taken will be at the same height and that each step will land in approximately the same balanced position on the tread as the previous steps in the pattern. Any substantial change in tread or riser dimensions in a flight of stairways can break the rhythm and cause a misstep, stumbling or undue physical strain which may result in a fall or serious injury. In emergency situations, building occupants tend to use stairways at a faster pace than under normal conditions, increasing the risk to the user. Therefore, this section limits the dimensional variations that can occur between adjacent treads or risers to a nominal $\frac{1}{16}$ inch with an overall tolerance of $\frac{3}{8}$ inch

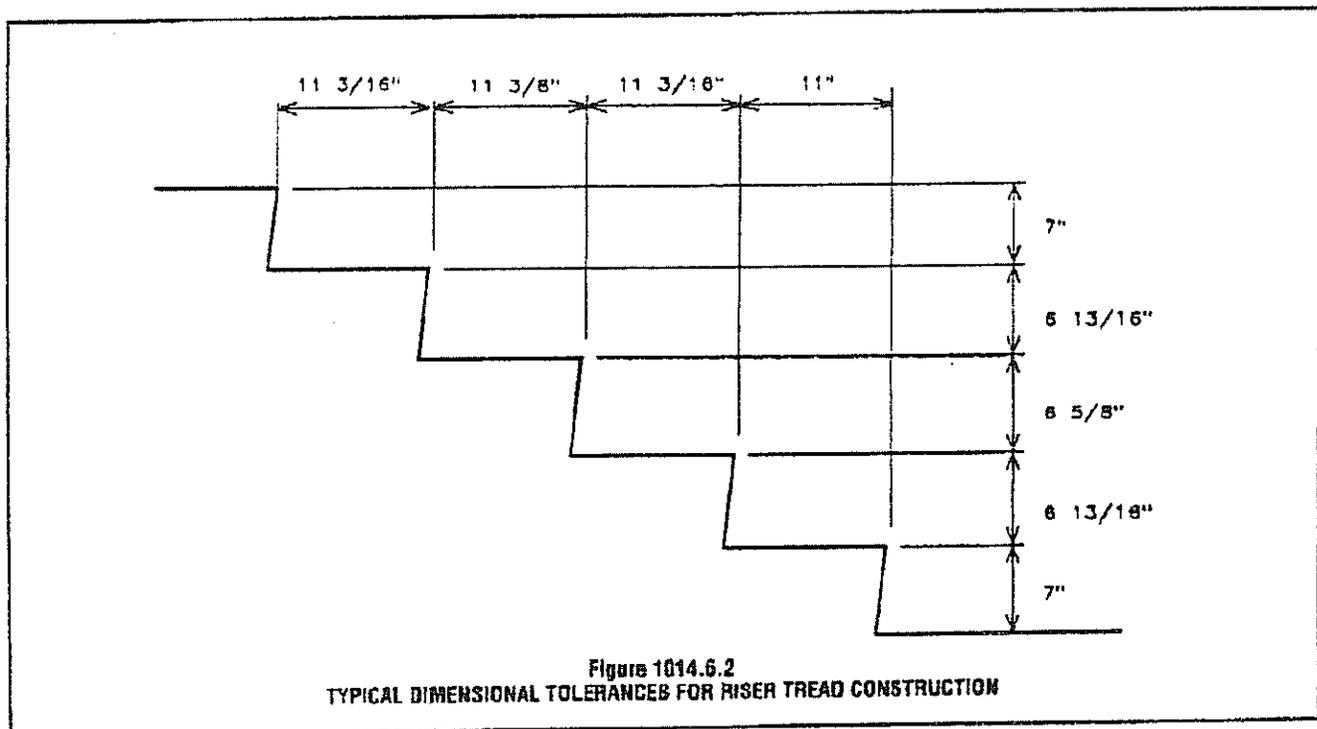
between the largest and smallest riser or tread dimension in a flight of stairways (see Figure 1014.6.2).

For special conditions of construction and as a practical matter, this section allows some greater variations in stairway tread and riser dimensions than the general limitations specified above. Exception No. 1 addresses the situation where the bottom riser of a flight of stairways meets a sloped landing such as a public way, walk or driveway. Exception No. 2 addresses conditions where the seating in assembly facilities is on a sloping gradient (for sightline purposes) and the stairways become an integral part of the aisle arrangement (see Section 1012.4). In situations where such nonuniformity exists, the nosing of the tread must be clearly marked in either a special pattern marking or distinctive lighting strip to enable the user to identify the location of the step.

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).

■ This section specifies the minimum dimensional requirements for the construction of stairway winders. Winders are used to form a bend in a flight of stairways to change the direction of the run.

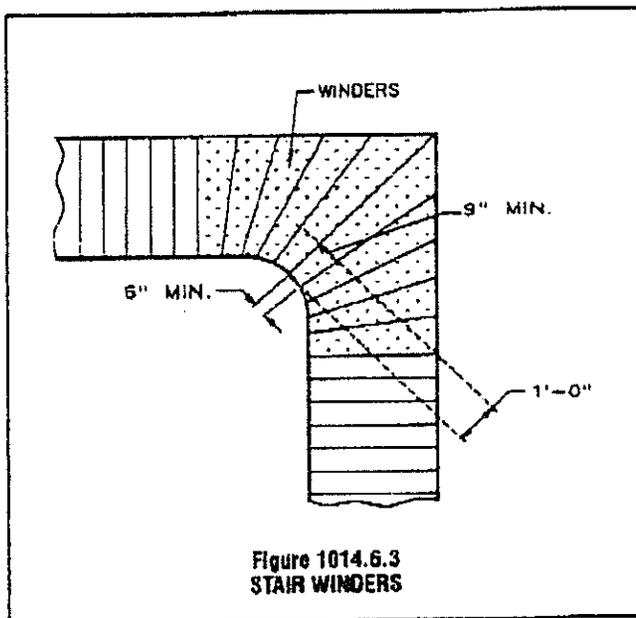
The risk of injury in the use of stairways constructed with winders is greater than for stairways constructed as straight runs. This is particularly true in emergency situations where the rate of travel up or down a stairway is increased from the pace set under normal conditions of stairway use.



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The employment of winders in stairway construction creates a special hazard because of the tapered configuration of the treads. For example, a person descending a straight flight of stairways will set up a natural cadence or rhythmic movement (see commentary, Section 1014.6.2). However, in a stairway constructed with winders, the rhythmic movement of descent is suddenly disturbed when the section of stairway with the winders is reached. Because of the tapered treads, the horizontal distance traveled by each of the footsteps nearest the radial center of the winding section is necessarily shorter than the distance that must be traveled by each if the footsteps are nearest the periphery or outer edge of the stairway (see Figure 1014.6.3). This condition sets up an eccentric movement. The hazard is further amplified because the inner footsteps (nearest to the radial center of the turn) must land on those portions of the tapered treads that are smaller in depth than the portions receiving the outer footsteps.

Because of the inherent dangers of stairways with winders, this section prohibits winders except in Use Group R-3 or stairways serving a single dwelling unit. This section does not prohibit winders from being used in stairways that are not a required means of egress.



1014.5.4 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 mezzanine 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 7 1/2-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 9 1/2 inches (241 mm). A minimum headroom of 6 feet 6 inches (1981 mm) shall be provided.

■ Spiral stairways are generally constructed with a fixed center pole which serves as either the primary or the only means of support from which pie-shaped treads radiate to form a winding stairway.

The commentary to Section 1014.6.3 regarding the eccentricity of movement on stairways with winders also applies to spiral stairways. The nature of stairway construction is such that it does not serve well when used in emergencies that require immediate evacuation nor does a spiral stairway configuration permit the handling of a large occupant load in an efficient and safe manner. Therefore, this section allows only limited use of spiral stairways. They are permitted as a means of egress only in occupancies in Use Group R-3 and within single dwelling units. Spiral stairways are also permitted to be used as a means of egress from mezzanines or special penal security spaces with areas of 250 square feet or less and serving not more than five occupants. Like stairways with winders, spiral stairways may be used in any occupancy as long as such stairways are not a component of a required means of egress.

Spiral stairways are required to have dimensional uniformity. Treads must be at least 26 inches wide and the depth of the treads must not be less than 7 1/2 inches measured at a point that is 12 inches out from the narrow edge (see Figure 1014.6.4). Riser heights are required to be the same throughout the stairway, but are not to exceed 9 1/2 inches. A minimum headroom of 6 feet 6 inches is required.

