Building Inspection Department
City of De Pere
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1. Basement and Ground Floor Exits

A. General. All basements and ground floors shall be provided with a least one exit of the following types:
   1. A door to the exterior of the dwelling.
   2. A stairway or ramp that leads to the floor above.

B. Basements and ground floors used for sleeping.
   1. Basements and ground floors used for sleeping shall be provided with at least two (2) exits.
   2. The exits shall be located as far apart as practical.
   3. The exits may not be accessed from the same ramp or stairway.
   4. In addition to the exit type required under para. (a), the second exit from a basement or ground floor used for sleeping shall be one of the following types:
      a. A door to the exterior of the dwelling.
      b. A stairway or ramp that leads to the floor above.
      c. A stairway that leads to a garage provided the garage has an exit door other than the overhead door.
      d. An egress window that complies with Item 2 (Windows Used for Exiting), located in each bedroom.

2. Windows Used for Exiting

Windows which are installed for exit purposes shall comply with the requirements of this subsection.

A. The window shall be openable from the inside without the use of tools or the removal of a sash. If equipped with a storm or screen, it shall be openable from the inside.

B. General
   1. The nominal size of the net clear window opening shall be at least 20 inches by 24 inches irrespective of height or width. Nominal dimensions shall be determined by rounding up fractions of inches if they are $\frac{1}{2}$ inch or greater or rounding down fractions of inches if they are less than $\frac{1}{2}$.
   2. No portion of the window, including stops, stools, meeting rails and operator arms, shall infringe on the required opening.

C. The area and dimension requirements of para. (b) may be infringed on by a storm window.

D. General
   1. For any window used for exiting, the lowest point of clear opening shall be no more than 60 inches above the floor.
   2. If the lowest point of clear opening is more than 46 inches above the floor, a permanent platform or fixture shall be installed such that a flat surface at least 20 inches wide and 9 inches deep is located no more than 46 inches directly below the clear opening.
   3. The topmost surface of the platform or fixture shall be no more than 24 inches above the floor.

4. The topmost surface of the platform or fixture shall support a live load of at least 200 pounds.
5. A step used for the sole purpose of reaching the top of the platform or fixture is exempt from the requirements of s.Comm 21.04.

E. General
1. An egress window with any point of clear opening below adjacent grade shall be provided with an areaway in accordance with this section.
2. The width of the areaway shall at least equal to the width of the window.
3. The areaway shall be a minimum of 36 inches measured perpendicular from the outer surface of the below-grade wall.
4. If the bottom of the areaway is more than 46 inches below adjacent grade or the top of the areaway enclosure, the areaway shall be provided with a ladder or at least one additional step to aid egress. Steps used to comply with this section are exempt from the requirements of s.Comm 21.04.
5. The areaway shall be constructed such that water entering the areaway does not enter the dwelling.

Question:	Are there State-approved manufactured areaways that meet code requirements:
Answer:	Yes, to date, two manufacturers have applied for and been granted approvals for egress window areaways that meet the intent of the code. Some of these have "ledges or stepped terraces" that do not meet Comm. 2104 for stairs, but act as an aid to exiting. They have been granted even though the wall furthest away from the house (which may have stepped ledges in it) does not measure 36" out from the house.

3. Ladders

A. Design Load – Ladders shall be designed to withstand loads of at least 200 pounds.

B. Tread or Rungs
1. Minimum tread requirements shall be specified as shown below. Treads less than nine (9) inches in width shall have open risers. All treads shall be uniform in dimension.

Pitch of Ladder Angle to Horizontal (degrees)	Maximum Rise (inches)	Minimum Tread (inches)
41.6 to 48.4	8	9
greater than 48.4 to 55.0	9	8
greater than 55.0 to 61.4	10	7
greater than 61.4 to 67.4	11	6
greater than 67.4 to 71.6	12	5
greater than 71.6 to 75.9	12	4
greater than 75.9 to 80.5	12	3
greater than 80.5 to 90	12	2

2. Rungs may only be used for ladders with a pitch range of 75 ° to 90 ° . Rungs shall be at least 1 inch in diameter for metal ladders and 1½ inches for wood ladders. All rungs shall be uniform in dimension.

Ladder Treads – Ladder treads are measured the same as stairway treads – horizontally from nosing to nosing.

C. Risers – Risers shall be uniform in height and shall conform with the above table.
D. Width – The width of the ladder shall be a minimum of 20 inches wide and a maximum 0f 30 inches wide.
E. Handrails
   1. Handrails shall be required for ladders with pitches less than 65°.
   2. Handrails shall be located at least 30 inches, but not more than 38 inches, above the nosing of the treads.
   3. Open handrails shall be provided with intermediate rails or an ornamental pattern such that a sphere with a diameter of 6 inches or larger cannot pass through it.
   4. The clearance between the handrail and the wall surface shall be at least $1\frac{1}{2}$ inches.
   5. Handrails shall be designed and constructed to withstand a 200 pound load applied in any direction.
F. Clearances
   1. The ladder shall have a minimum clearance of at least 15 inches on either side of the center of the tread.
   2. The edge of the tread nearest to the wall behind the ladder shall be separated from the wall by at least 7 inches.

Top Ladder Tread – This code section is requiring that the top tread's back edge be at least 7 inches from the wall in front of it. This ensures adequate foot room and still allows a full depth tread.

   3. A passageway clearance of at least 30 inches parallel to the slope of a 90 ° ladder shall be provided. A passageway clearance of at least 36 inches parallel to the slope of a 75 ° ladder shall be provided. Clearances for intermediate pitches shall vary between these 2 limits in proportion to the slope.
   4. For ladders with less than a 75 ° pitch, the vertical clearance above any tread or rung to an overhead obstruction shall be at least 6 feet 4 inches measured from the leading edge of the tread or rung.

5. Light and Ventilation

B. Natural Light – All habitable rooms shall be provided with natural light by means of glazed openings. The area of the glazed openings shall be at least 8% of the net floor area, except under the following circumstances:
   1. Exception – Habitable rooms, ***other than bedrooms***, located in basements need not be provided with natural light.
   2. Exception – Natural light may be obtained from adjoining areas through glazed openings, louvers or other approved methods. Door openings into adjoining areas may not be used to satisfy this requirement.

B. Ventilation
   1. Natural Ventilation – Natural ventilation shall be provided to all habitable rooms by means of openable doors, skylights or windows. The net area of the openable doors, skylights or

windows shall be at least 3.5% of the net floor area of the room. Balanced mechanical ventilation may be provided in lieu of openable exterior doors, skylights or windows provided the system is capable of providing at least one air change per hour of fresh outside air while the room is occupied. Infiltration may not be considered as make-up air for balancing purposes.

2. Exhaust Ventilation – All exhaust ventilation shall terminate outside the building.

Question:	Can an exhaust vent duct terminate in the attic, crawlspace, garage or into the roof soffit.
Answer:	No. This code section requires that all exhaust ducts shall terminate OUTSIDE the "building" or "structure". Therefore, the exhaust system may not terminate in the attic, crawlspace, garage or within the soffit portion of the attic. The soffit material on either side of the exhaust discharge should be solid so that exhausted material is not directed back into the attic space. However, exhaust ducts are not prevented from passing through these areas as long as the duct termination passes through or is tight fitted to the exterior "skin" of the building to ensure the air is exhausted outside. Simply pointing an exhaust duct in the direction of a soffit vent or other vent opening is not acceptable. This issue is similarly regulated by s.Comm 23.02(3).

5. Smoke Detectors

A. A listed and labeled multiple-station smoke alarm with battery backup shall be installed in all of the following locations.

1. An alarm shall be installed inside each sleeping room.
2. On floor levels that contain one or more sleeping areas, an alarm shall be installed outside of the sleeping rooms, in the vicinity of each sleeping area.
3. On floor levels that do not contain a sleeping area, an alarm shall be installed in a common area on each floor level.

Note 1: Section 50.035 (2), Stats., created by 1983 Wis. Act 363 requires the installation of a complete low voltage, interconnected or radio-transmitting smoke detection system in all community-based residential facilities including those having 8 or fewer beds.

Note 2: Section 101.645 (3), Stats., requires the owner of a dwelling to install a functional smoke detector in the basement of the dwelling and on each floor level except the attic or storage area of each dwelling unit. The occupant of such a dwelling unit shall maintain any smoke detector in that unit, except that if any occupant who is not the owner, or any state, county, city, village or town officer, agent or employee charged under statute or municipal ordinance with powers or duties involving inspection of real or personal property gives written notice to the owner that the smoke detector is not functional the owner shall provide within 5 days after receipt of that notice any maintenance necessary to make that smoke detector functional.

Note 3: Section 101.745 (4), Stats., requires the manufacturer of a manufactured building to install a functional smoke detector in the basement of the dwelling and on each floor level except the attic or storage area of each dwelling unit.

Question:	What does the "…… in the vicinity of each sleeping area" mean?
Answer:	A single detector can serve a group of bedrooms that are not separated by other uses such as a kitchen or living room.
Question:	Are there other warning devices acceptable to the Department other than a listed detector?
Answer:	Yes, an interconnected alarm or horn that is wired into the smoke detector system is acceptable since the Department concern is to wake sleeping inhabitants and not just smoke detection. The sound levels commonly accepted as able to wake a sleeping person is 75 dba at the pillow. Remember the following sound loss deductions:

Sound Loss at 1000 HZs	
Stud Wall	41 db
Open Doorway	4 db
Typical Interior Door	11 db
Typical Fire Related Door	20 db
Typical Gasketed Door	24 db

B. Smoke detectors required by this section shall be continuously powered by the house electrical service, and shall be interconnected so that activation of one detector will cause activation of all detectors.
C. For family living units with one or more communicating split levels or open adjacent levels with less than one full story separation between levels, one smoke detector on the upper level shall suffice for an adjacent lower level, including basements. Where there is an intervening door between one level and the adjacent lower level, smoke detectors shall be installed on each level.
D. Smoke alarms and detectors shall be maintained in accordance with the manufacturer's specifications.
E. For envelope dwellings, at lease 3 smoke alarms shall be placed in the air passageways. The alarms shall be placed as far apart as possible.

Note that state statute s. 101.615 requires smoke detectors in pre-UDC (June 1, 1980) dwellings similar to the UDC requirements. Chapter Comm 28 codifies these requirements for older dwellings.

Question:	If a contractor or owner wants to have additional smoke detectors over and above the minimum required by the Code, can they be battery-operated or must they be hard wired into the required system(s)?
Answer:	Yes, if an owner wants a battery-operated smoke detector in every room or closet, they can do that.
Question:	Should the smoke detectors be connected to a separate, dedicated circuit or can they be tied to any lighting or outlet circuit?
Answer:	Unlike fire alarm systems in commercial applications, the Department's recommendation is to connect the smoke detectors to a common lighting circuit and be connected ahead of any local switches. That way, if the circuit breaker trips, the owner will be aware that his smoke detector and alarms are not operational because his hallway or kitchen (etc.) lights aren't working.